

MANUFACTURERS RECORD

The President has spoken and has given us "information of the state of the Union." It was the speech of a leader prepared to take counsel and not to dictate.

Congress has convened for the first time since 1932 as an independent branch of the government.

The future of the nation rests in the hope that the administrative and legislative branches will operate independently but cooperatively under the Constitution.

MACKLIN

GRINDING WHEELS



THAT'S MY JOB!
"PROTECT YOUR PRODUCTION"



Macklin Field Engineers are experienced in recommending the best Macklin wheel to use on any grinding job. There is a Macklin grinding wheel suited to grind every part required in today's production demands. Ask for the services of a Macklin Field Engineer.

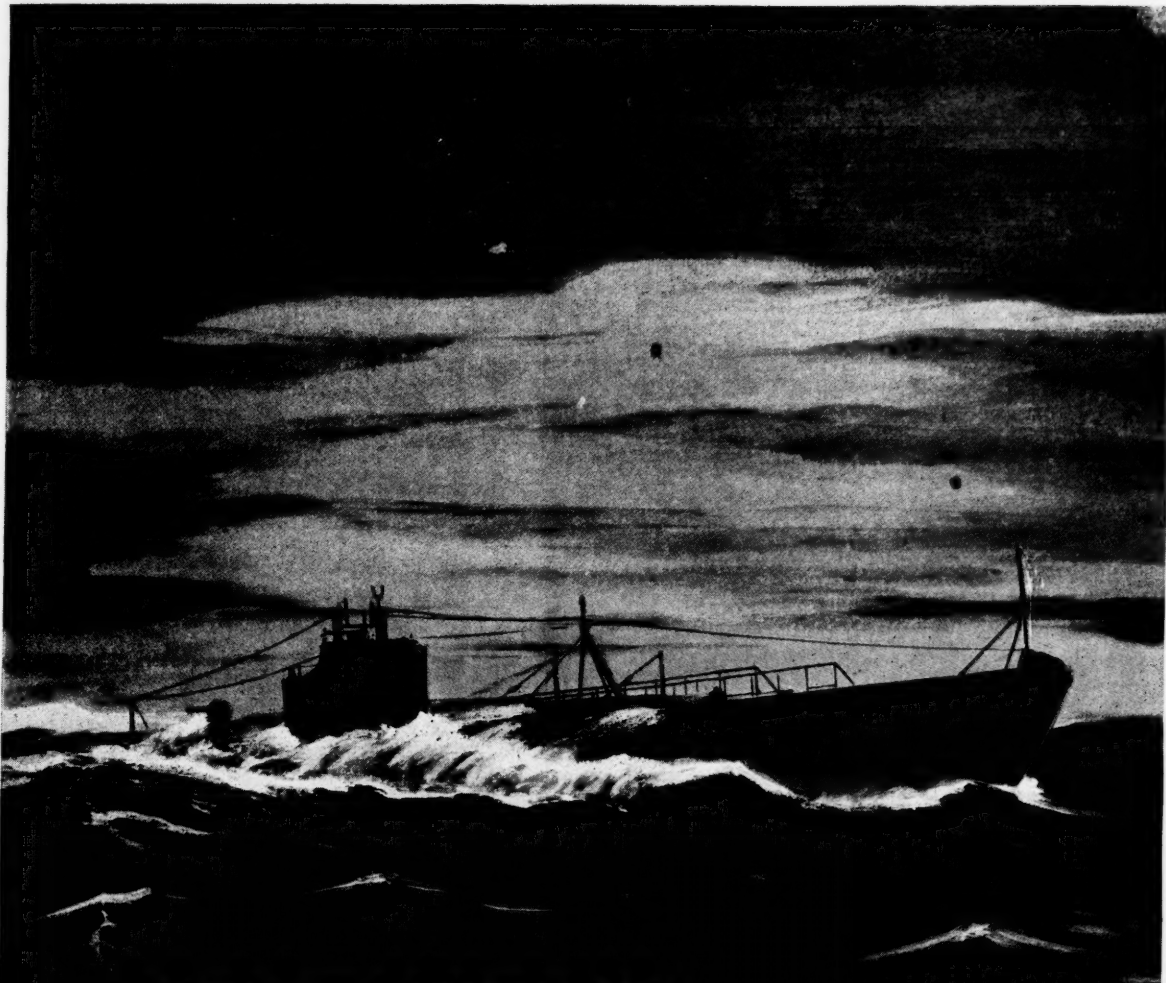
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 JACKSON, MICHIGAN, U. S. A.

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"Proceeding with Assigned Task"

OUR assigned task is now to give the armed forces what they need to win this war.

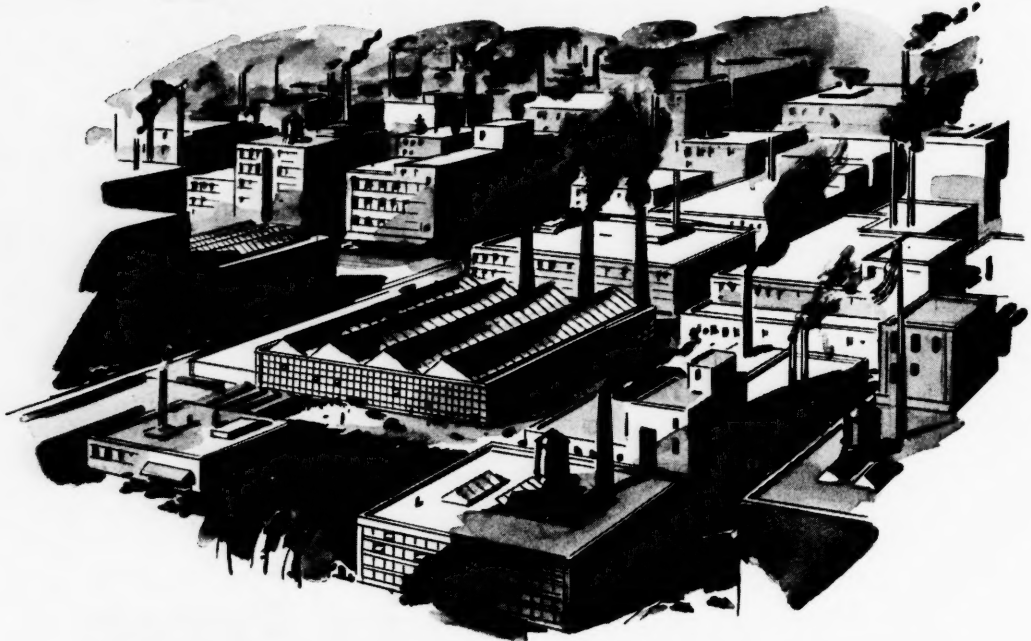
Fairbanks-Morse Diesel Engines have become an important weapon in global warfare. Submarines of the United States Navy are each day exacting heavy toll from the enemy in his own waters.

The years of pioneering, the years of research which made this company a leader in Diesel design and manufacture are now yielding rich returns to the nation in its time of need.



FAIRBANKS, MORSE & CO.

How Hundreds of Vital War Plants Have Guarded Against Roof Repair Expense

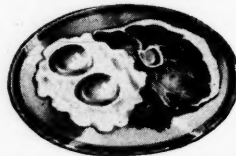


CELOTEX BONDED BUILT-UP ROOFS ... are Covered by Written Surety Bond for Periods of 10, 15, or 20 Years!

CELOTEX BONDED Built-Up Roofs are well known to industry. They meet Celotex world-famous standards of quality in every respect. That is why they have been chosen to guard vital war plants in all parts of America.

Celotex Bonded Built-Up Roofs are available with 10, 15, or 20-year bond. This bond is a written guarantee of freedom from repair expense for a definite period of years ... additional assurance, over and above the quality reputation of Celotex

Products and the ability and experience of every contractor licensed to apply those products.



"GO TOGETHER LIKE HAM AND EGGS"

Before you sign a contract, investigate the advantages of using Celotex Vapor-seal Roof Insulation in combination with a Celotex Bonded Built-Up Roof. They go together like ham and eggs—give you the benefit of undivided responsibility—because the same responsible manufacturer produces both. Write for complete information!

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REG. U. S. PAT. OFF.

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ROCK WOOL • GYPSUM WALLBOARD • LATH
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CHICAGO

MR 1-13-43

Please send complete information on Celotex Bonded Built-Up Roofs and Celotex Vapor-seal Roof Insulation.

Name

Address

City State

MANUFACTURERS RECORD

Established 1882

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JANUARY, 1943

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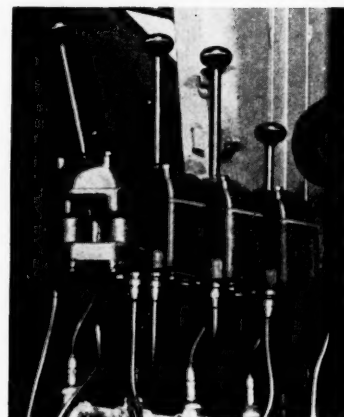
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Remote Control SYSTEMS for Industrial Use



COMPRESSED air, because of its inherent power, flexibility, and adaptability can be utilized to perform many functions on industrial equipment with greater speed, safety, dependability, and productivity, than by ordinary manual or mechanical means... Effortless manipulation, greater convenience, remote control, and co-ordination of many operations in proper sequence are made possible by this noteworthy development—the "Flexair" Valve.

Available in a variety of forms, with one or many functions, this valve facilitates operation of clutches, mechanical movements, or other devices. A group of "Flexair" valves controlling a multiplicity of inter-locked operations on an excavator, is shown in the illustration.

Our engineers will be glad to cooperate in analysis and development of a system to solve your particular operating problem... Such a system will be complete with Westinghouse "Flexair" Valves, air compressors, tanks, operating cylinders, "Savair" cocks, etc.—devices that embody distinctive features evolved through 73 years experience in designing and building pneumatic control apparatus.

Westinghouse
AIR BRAKE CO.
Industrial Division
PITTSBURGH, PA.



No Time to Wait—

When a sneaking, treacherous enemy struck at America, in December, 1941, immediate action was vital to the nation's safety.

The rapid, unprecedented expansion of America's armed forces and the conversion of the nation's industries and resources for gigantic war production demanded immediate mass transportation.

The American railroads were ready—ready because in the 20 years before war struck, they spent more than **TEN BILLION DOLLARS** for additions and improvements of all kinds to the railway plant. They were ready because tractive power of steam locomotives is 48 per cent greater than in World War I, because freight trains run two-thirds faster, because freight car capacity is 21 per cent greater—in short, because of improvements and increased efficiency all along the line.

Since Pearl Harbor, the American railroads, with the cooperation of shippers and government, have handled successfully the greatest traffic load of all times—11,000,000 members of the armed forces (in the first year of war), 6,000 carloads of materials a day to government camps and plants, 34,000,000 gallons of oil a day, 2,500 to 3,000 carloads of freight a day to ports of embarkation, plus huge civilian traffic.

No one knows how big the war traffic load in America will grow. But the load is increasing. The Norfolk and Western Railway and the other railroads of the nation will continue to handle the job efficiently, but they must be permitted to buy materials for essential maintenance and replacements to meet the increasing demands. America cannot afford to neglect her railroads.

Norfolk and Western *Railway*

ONE OF AMERICA'S RAILROADS... *ALL* MOBILIZED FOR WAR!

BUY U. S. WAR BONDS

Thoughts for the Thoughtful

Captain Rickenbacker has said production would be doubled if our men at the battle fronts could change places with the workers at home.

The war is being brought nearer home. True Americans are thinking more for themselves, and union labor is getting a bad name not because of any inherent wrong in the principle of union labor, but because of the way it has been handled for political purposes. Labor leaders have been flattered and their counsel has been sought because of their supposed political influence, but they will lose whatever influence they have, and their jobs too as they should, unless the strikes that have deviled the country during the gravest crisis of its history are stopped.

There is no desire on anyone's part to impugn a man's patriotism because he belongs to a union. The reason union membership as a whole is criticized is because of the action of the walking delegates and the men who run the unions. The membership is too inarticulate. The leaders think they have to keep things boiling by way of a strike in order to hold their jobs, and too often the men are misled. Government plays politics with these leaders because they are supposed to be able to deliver the vote, but there is grave doubt about their ability to deliver as many votes as they claim they can.

Despite the pledges of union labor leaders to cooperate in the war effort, strikes persist and more are threatened. It seems to be about time for the rank and file of union workers to say what they think about winning the war and what they think about the racketeers who hold down their production.

It comes like a breath of clear fresh air from the mountains to meet men with clear eyes and determined faces who never hesitate to reaffirm their undying faith in the country's future and there are really such men. We know some of them. They are an inspiration. They see greater and ever greater heights of progress and national well-being for a land that depends upon Divine help, on individual initiative and on hard work.

What is the difference to the South between the governmental principles of New Dealism and those of former days under the "carpet-baggers"?

MANUFACTURERS RECORD FOR

Where are states rights? Who will control the elections? Who now does and will continue to pay the taxes and who will dictate them?

It is time for Southerners to pause and think.

The United States Supreme Court has rendered a unanimous decision upholding the government's power to regulate wheat production, even when the crop is to be consumed on the farm. An Ohio farmer who planted twenty-three acres of wheat was fined \$117.71 for raising twelve more acres than his allotment of eleven acres under the agricultural adjustment act.

Granting that the decision is in accordance with the letter of the law, the reasoning of Justice Jackson, who wrote the decision, has far-reaching effect on every American citizen. He said that wheat, even if grown for home consumption, could be considered within the scope of congressional regulation if it "exerts a substantial economic effect on interstate commerce." To emphasize this point, he went further and said that even if such wheat was never marketed, it is subject to regulation because "it supplies a need of the man who grew it which would otherwise be reflected by purchases in the open market," and, therefore, it "competes with wheat in commerce."

This is worth thinking over. Under similar legislation and court rulings, almost every productive act of American citizens could be construed to "exert a substantial economic effect on interstate commerce," and therefore be subject to federal jurisdiction.

If a farmer cannot feed his surplus grain to his own cattle because this affects interstate commerce, how long will it be before he is told he cannot kill a hog or a beef for his own consumption because "it supplies a need of the man who grew it which would otherwise be reflected by purchases in the open market."

Almost any human activity of free and independent men and women could be brought under the dragnet classification of "exerting a substantial economic effect on interstate commerce." The housewife who makes a dress for herself interferes with such commerce.

And this is happening in the United States where the independence of the American farmer is one of the most sacred traditions of our nation.

Bluefield [W. Va.] Daily Telegraph.

The Southern Railway is doing a valuable work for all railroads in the publicity that speaks of "the train that never ends * * * no last car, no caboose." Day and night such trains are rushing from one end of

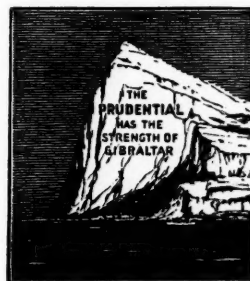
(Continued on page 8)

When the Head Helps the Heart

Love of family urges a man to protect his dependents . . . and his mind proceeds to find the way.

Life Insurance, of course, furnishes the answer and he can always choose one among the many plans available that most nearly fits his needs and resources.

*The Prudential offers
a variety of
low-premium policies*



The Prudential
Insurance Company of America
Home Office, NEWARK, N. J.

Remember!



VALVES HYDRANTS Need Regular INSPECTION



Due to rapidly changing personnel on account of employees going to the Army and Navy, valves and hydrants may now be sometimes in the hands of persons not very familiar with their proper care. We offer the following suggestions:

GATE VALVES

All Gate Valves in water lines should be inspected at least twice per year, more often if possible. Most of these valves stay continuously in open position. Unless inspected, a valve might remain open for a number of years. Then in case of emergency, the valve might be found inoperative. An inspection should consist of opening and closing the valve several times to see that it is in perfect working order, and gland bolts should be tightened if there is any indication of leakage after inspection.

FIRE HYDRANTS

The above suggestions also apply to Fire Hydrants. In addition, Fire Hydrants should be flushed out at least twice per year to remove foreign matter that might collect, thus making the hydrant difficult to operate or might clog nozzle of fire hose.

M & H PRODUCTS INCLUDE

FIRE HYDRANTS
GATE VALVES
TAPPING VALVES
WALL CASTINGS
SPECIAL CASTINGS
TAPPING SLEEVES
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MUD VALVES
VALVE BOXES
FLAP VALVES
SLUDGE SHOES
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FLARE FITTINGS
FLANGED FITTINGS
B & S FITTINGS
CUTTING-IN TEES

M & H VALVE AND FITTINGS COMPANY

ANNISTON, ALABAMA

Thoughts for the Thoughtful

(Continued from page 7)

America to the other with greater loads and on faster time than ever before.

In referring to its own territory and the war's end, the Southern says "for then another new South will have been born * * * a richer, greater South with new plants, new products for the free peoples of the better world that surely lies ahead."

It was interesting to us to see that all good Americans who work in war production are not named Smith or Jones or Brown.

The following names were called from a list of workers in a plant that has recently been awarded the Army & Navy "E."

Badertscher	Morvitz
Bakos	Langowski
Bendula	Paudelski
Bodenlos	Pochvatila
Dolezal	Pruzinski
Dropic	Rottel
Hlebak	Schilthorn
Popowski	Schabitzer
Principe	Tenwinkel
Skalecki	Tompot
Beznoska	Tomsik
Chizmar	Urbanowicz
Csisko	Vecchione
Curilovic	Vojnar
Damasiewicz	Yacyshym
Gudat	Zakrakesk
Hosko	Zawada
Iafelice	Zukovich
Jastrebski	Sobieraj
Jastrzembski	Rocchicciolo
Kafoory	Eigabroadt
Komaranski	Grudowski

What makes a real American? It is not his name. It is his loyalty, his determination to stand on his own two feet and to fight for his rights.

We think that it is time for every thoughtful man and woman to consider the effect of bureaucratic government in their own lives. To call this to your attention we append two able quotations, one from a standard dictionary and one from Raymond Moley in the Wall Street Journal. The latter says:

MANUFACTURERS RECORD FOR

"Status in the bureaucracy consists not only in having a brain but in possessing in that brain a set of opinions consistent with the opinions held higher up. Promotion depends upon the maintenance of that harmony. If the word gets around that a bureaucratic subordinate is a maverick, that he is critical of the boss, or that he has 'a business point of view,' or, in some other period, 'a labor point of view,' the way of promotion is closed. A youngster today has only to look up the high mountain to see how surely conformity with prevailing opinion is the exilir of success. There at the top, in the Supreme Court, he sees several shining examples of conformity. Can a young man be expected to dash his ambitions to the ground and wander back into the wilderness from which he came? Of course not. So he conforms.

"That, more than anything else, is why old-fashioned people believe in the ideal of a government of law—however imperfectly it was achieved at a given moment. For so long as the ideal stood, so long as men strove to reach it, there was at least the dim promise of something fairer than a multiplicity of individual discretions could ever offer. Beyond that, it was never human discretion alone, that men like Aristotle and Madison and Jefferson feared; it was what happens to human beings when they have power."

A standard dictionary defines "bureaucracy" as: Government by bureaus; specifically, excessive multiplication of, and concentration of power in, administrative bureaus. The principle of bureaucracy tends to official interference in many of the properly private affairs of life, and to the inefficient and obstructive performance of duty through minute subdivision of functions, inflexible formality, and pride of place.

The nation's railroads have given the greatest transportation performance in history, J. J. Pelley, president of the Association of American Railroads, said in a statement summarizing 1942 achievements.

The volume given the railroads to haul, he asserted, was the greatest ever offered any form of transportation in a comparable period and was moved without congestion or interference with the war effort.

He placed the 1942 volume at 630 billion ton-miles (the weight of cargo multiplied by the number of miles carried), or nearly 33% greater than the previous record of 1941. Mr. Pelley said a further 10% increase was expected in 1943.

The railroads also reached a new high in passenger traffic with the year's volume placed at 53 billion passenger-miles, or 13% more than the old record set in 1920 and 80% more than in 1941.

Much of 1942's passenger volume was due to troop movements, which Mr. Pelley said approximated 2,000,000 members of the armed forces each month.



"The Garand" . .

OUR ARMY'S FAMED HIGH POWER RIFLE

Well built, accurate and exceptionally hard hitting! These are the outstanding and highly praised features of the Garand rifle. Used by both Army and Marine troops, these rifles have won great distinction on the field of action.

Hundreds of thousands of Garands have been made in an amazingly short period of time. But for the raw material producers and the factories—and for the men who built them, there had to be an abundance of water. To the Layne Organization fell the task of producing an amazingly high percentage of that water. The quality and dependability of Layne Wells and Pumps had long been proven on the field of action.

Layne Wells and Pumps are backed by more than sixty years of outstanding success in all parts of the world—and even under the most adverse conditions, they constantly maintained their enviable record of highest efficiency and long life. Layne's activity is now nearly 100 percent for the war effort, but when peace returns, installations for municipal and private industries will be resumed. In the meantime, every effort is being made to supply parts and repair service to all existing installations.

For late bulletins, catalogs and further information, address

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Detailed reports will be furnished on specific sites upon request. We offer all the benefits of an experienced plant location service without obligation or cost. Inquiries kept strictly confidential. Write:

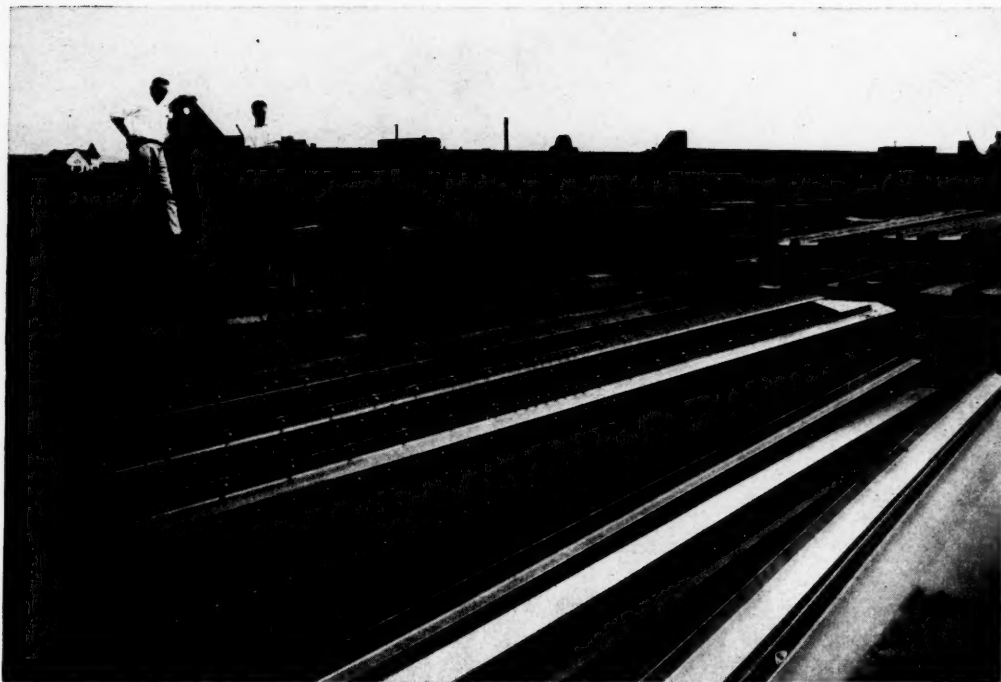
Warren T. White, General Industrial Agent
Norfolk, Virginia

FOR MANY YEARS
we have helped industry by furnish-
ing reliable surveys on industrial
locations in the Seaboard Southeast.

MORE RECENTLY we have like-
wise assisted numerous Government
agencies by supplying authentic
reports on various parts of our
territory.

OUR PRIME OBJECTIVE:—
To contribute to our Country's war
effort in every possible way until
victory is won.

INDUSTRIAL DEPARTMENT
SEABOARD *Air Line* **RAILWAY**



It Takes A Lot of Structural Steel to Win A War—

And it takes a lot of engineering and fabricating ability to supply it in the many forms required. New construction of unprecedented size and design; the expansion of existing manufacturing facilities and remodeling of industrial plants converted to the production of materials and equipment essential to victory, are some of the needs which impose difficult engineering problems and consume heavy tonnages of steel.

War traffic must move on the green light, necessitating the construction of new viaducts, railway and highway bridges; the repair, strengthening and maintenance of old structures, as well as providing the vehicles adequate to convey men and materials safely and quickly by land and sea to the fighting fronts.

These are imperative first needs, and in the numerous and varied projects entrusted to Virginia Bridge our diversified construction experience helps us meet the unusual engineering and fabricating requirements. Until they are satisfied we will miss no opportunity to use our personnel and resources to best serve the nation's No. 1 job.

Virginia Bridge

STEEL STRUCTURES

All Types

Plants:

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Birmingham, Ala.

Memphis, Tenn.



VIRGINIA BRIDGE COMPANY

(South's Largest Structural Steel Fabricator)

Roanoke

Birmingham

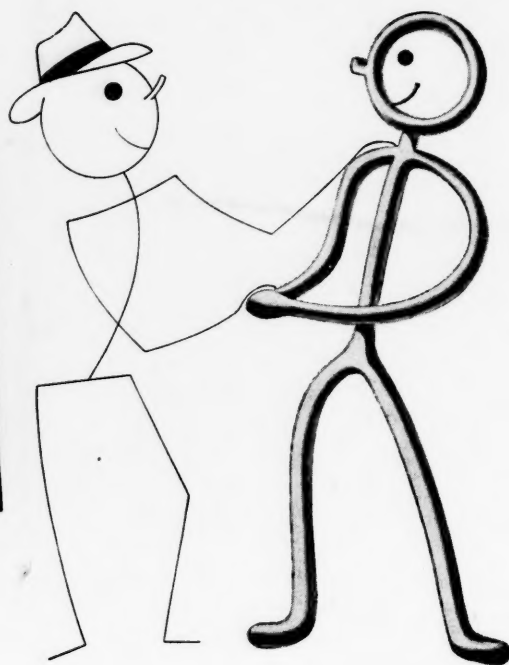
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Memphis

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UNITED STATES STEEL



Nothing that an aluminum man can have to say about plastics can add to their virtues or subtract from their very genuine possibilities.

Actually, Alcoa welcomes the strides being made, technically and commercially, by this great and ingenious industry.

This is not mumbo-jumbo. It is a distinctly pious thought.

The more folks who get the big idea that the bright hope of industry, postwar, is to do new things new ways . . . the more designers who really get down to cases, the better for all of us. Imagineering is a nationwide must.

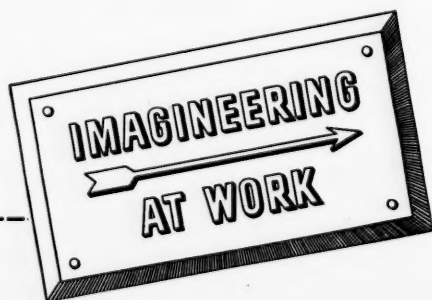
Plastics do many things better than any other material.

Alcoa Aluminum does many things better than any other material.

The two can team up to do a better job for you in certain situations than either could do alone.

As for Alcoa Aluminum, busy seven days a week on war production, we can only remind you that when our strong alloys are again available, you are going to have to throw your old measuring sticks into the scrap heap. New costs, new strengths, new technology, new finishes.

Of such things will postwar jobs be made. On such things must our "eighth-day" thinking be concentrated. ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh, Pennsylvania.



Alcoa Aluminum





Supply lines THAT CARRY THE LIFE-BLOOD OF INDUSTRY

EVERY new bomber that takes wing, every tank that rolls off the assembly line, every ship that slides down the ways is a product of electric power — most of it generated many miles from the point of use. That's why the absolute dependability of power transmission is more important to America than ever before.

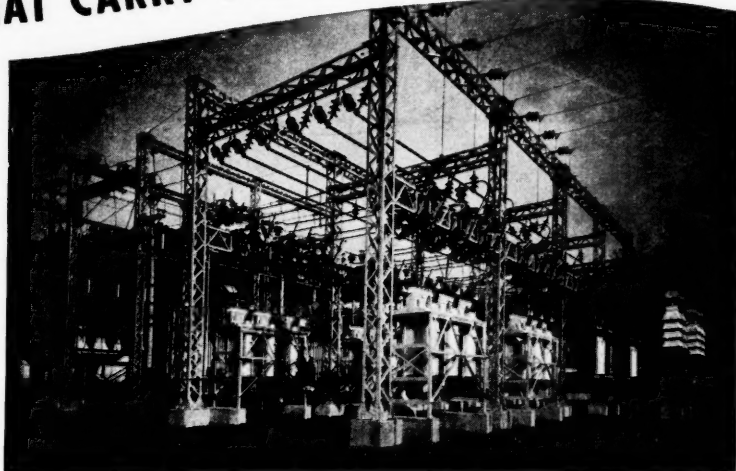
Throughout the country, thousands of American Bridge transmission towers are helping to feed a continuous flow of energy to busy production centers. And in many strategic switchyards American Bridge-built switch racks and takeoff towers support high-voltage leads to and from transmission lines. Some of these towers and substation structures have been in service over 30 years. Many are vintage 1942. All benefit from the same sound engineering practice, based on proved designs that have been thoroughly pre-tested under duplicated field con-

ditions in our factory test frame.

Today the studied simplicity of American Bridge tower designs is saving precious time in the completion of key power systems and system expansions. Cross-arm frames and shafts are clean-cut, with a minimum number of parts. Connections are simply designed. Members are shipped in the longest practicable lengths with splices

favorably located for quick erection and easy field handling.

Every transmission tower we're building now is a link in the vital supply line that feeds kilowatts to war industry. Tomorrow, our Tower Department's technical personnel, fabricating, testing and erecting equipment will be ready to meet the power transmission needs of the nation at peace.



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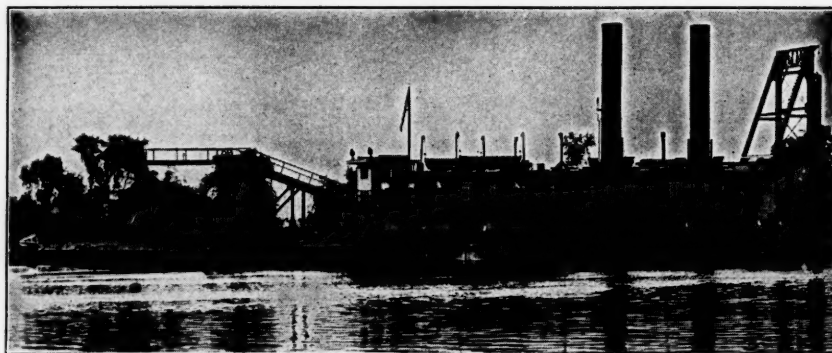
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UNITED STATES STEEL

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A fuel whose value has been proven by
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industrial applications.

Natural gas has created the possibility of
effortless comfort by the facility, and econ-
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Watts Building

Birmingham, Ala.

The train with no caboose

YOU HEAR its deep, friendly voice echoing through the mountains and the valleys of the Southland. You hear its powerful engine pounding through many a bustling city. You hear its eager clickety-clack as it weaves across fertile farmlands and greening pastures.

It's a freight train that never ends... with no last car... no caboose. It's the combined war-time freight haul of the Southern Railway System.

Day and night, this train hauls ore from the mines, oil from the wells, food from the fields and lumber from the forests. Day and night, it rushes bread and beef and bullets to America's fighting men. Day and night, it feeds American industry and sustains a nation grimly at work.

And when the war is over, this train with no caboose will still be humming over the rails of the Southern, proudly bearing the hard-won fruits of Victory.

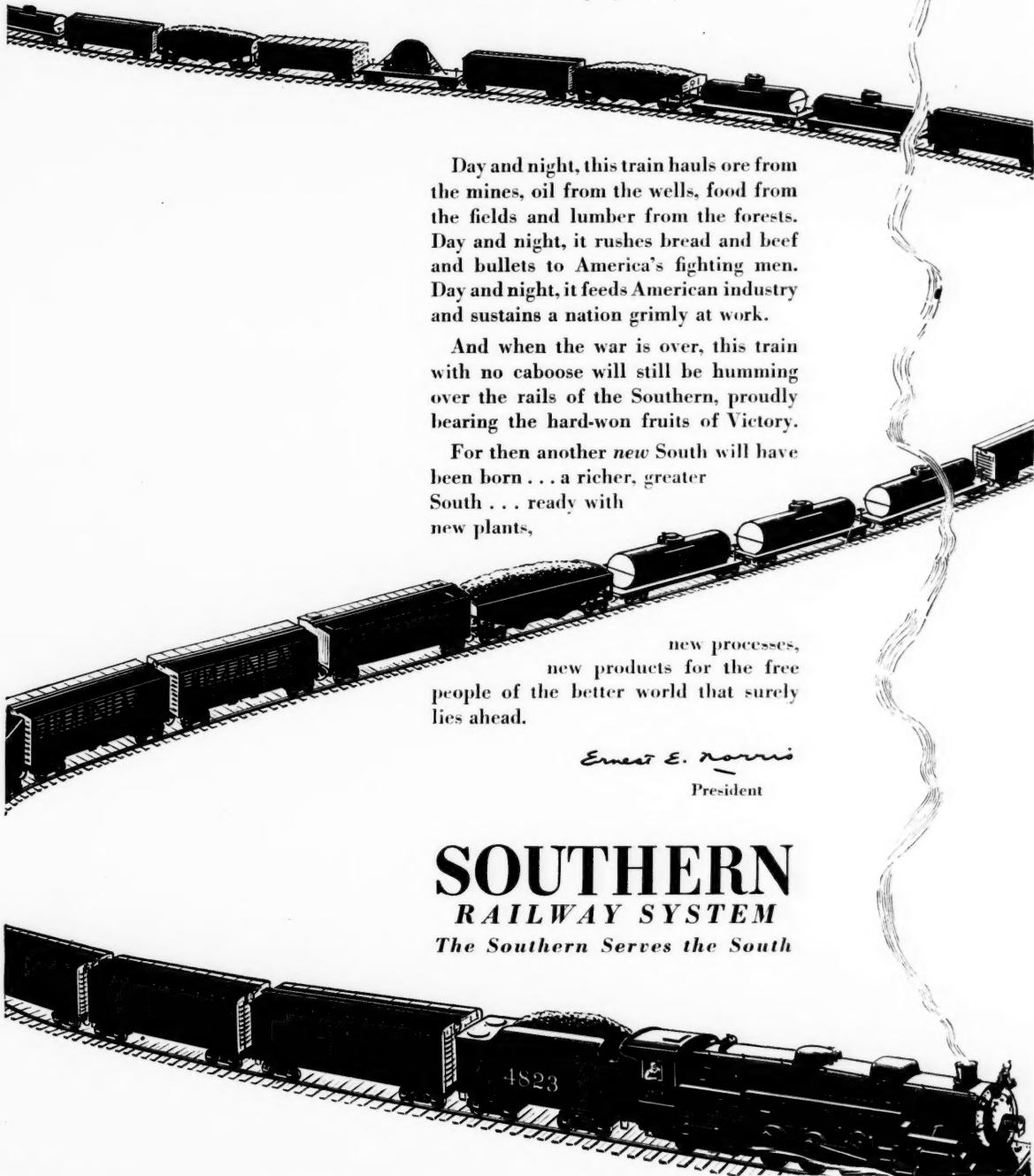
For then another *new* South will have been born... a richer, greater South... ready with new plants,

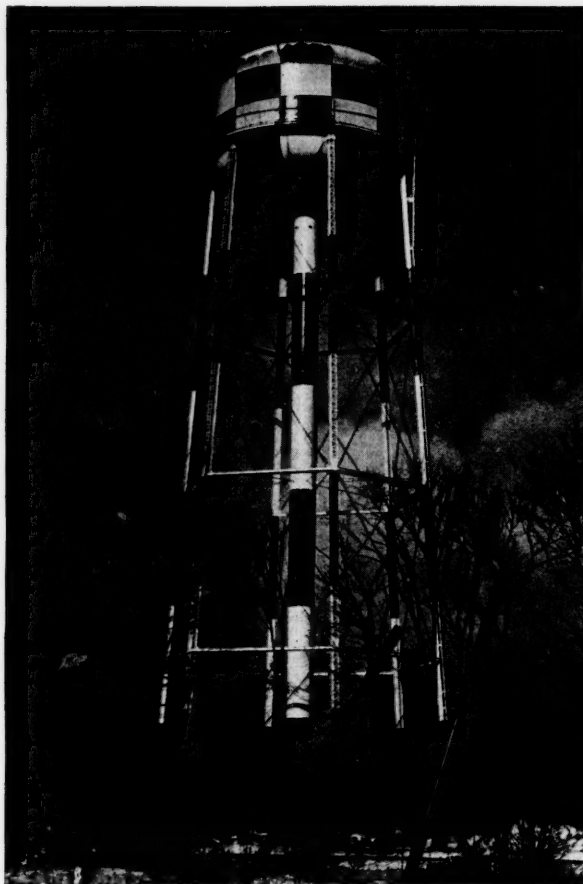
new processes,
new products for the free
people of the better world that surely
lies ahead.

Ernest E. Harris
President

SOUTHERN RAILWAY SYSTEM

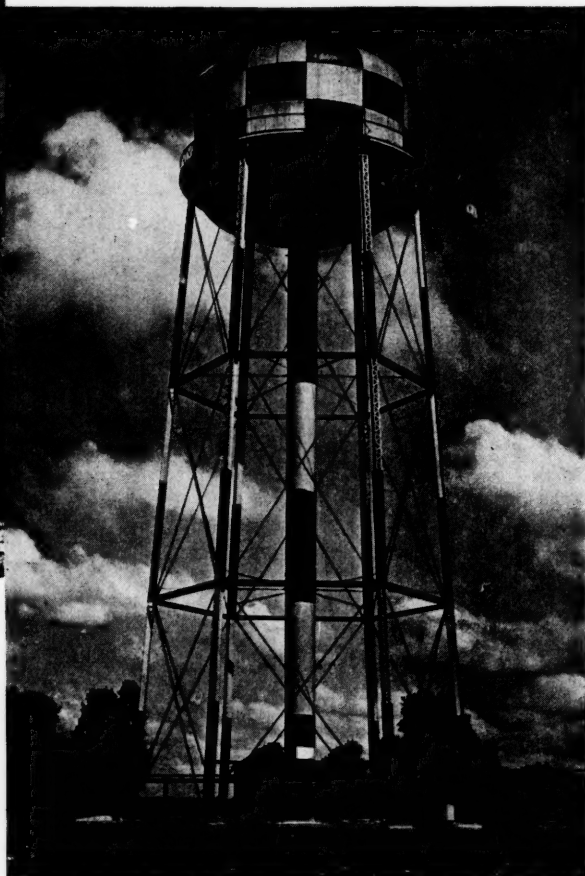
The Southern Serves the South





ELEVATED STORAGE

Serves
where water supply
Must not fail!



STANDING guard over a large ordnance plant are three Horton elevated storage tanks—symbols of dependability where failure of the water supply might cost heavily in lives.

Elevated tanks hold a reserve of water above the property they protect, ready to flow by gravity pressure the instant a blaze breaks out. A few hundred or a few thousand gallons of water sprayed on a fire the instant it starts will quench the flames before they have a chance to gain headway. This not only prevents monetary loss but keeps in service equipment that might be difficult to replace.

The total capacity of the tanks at the above-mentioned ordnance plant (a 100,000-gal. tank is not shown here) is 500,000-gals., sufficient to assure adequate protection in these vital zones.

Above: This 200,000-gallon structure, 100 ft. to bottom, supplies gravity water pressure for fire protection in vital areas of a midwest ordnance plant.

Upper Left: Supplying water to automatic sprinklers in certain load line units, this 200,000-gal. tank is 122 ft. 9 in. to bottom.

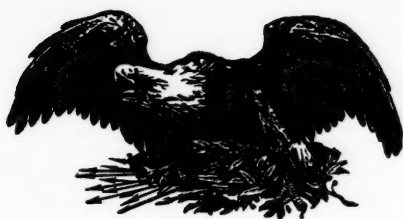
CHICAGO BRIDGE & IRON COMPANY

Birmingham1530 North Fifth St.
Houston5614 Clinton Drive
Tulsa1611 Hunt Building
GreenvilleYork St.

New York3313-165 Broadway Bldg.
Cleveland2216 Guildhall Building
Chicago2106 McCormick Building

San Francisco1040 Rialto Building
Philadelphia1619-1700 Walnut Street Bldg.
Havana402 Edificio Abreu
Washington330 Bowen Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.



Independence or a Mess of Pottage

Daniel Boone was not thinking of Social Security when he entered Kentucky through the Cumberland Gap.

Samuel Houston wasn't thinking of Social Security when he went to what is now Texas.

Kit Carson wasn't thinking of Social Security when he led Fremont's army into California.

"Wild Bill" Hickok wasn't thinking of Social Security when he became Marshal of Dodge City.

Private John Smith or Seaman Bill Jones, isn't thinking of Social Security now.

In the pioneer West, in Africa, in Guadalcanal, on the high seas these men of yester-years and of today were and are Americans. Their interests lay and still lie in the preservation of the American way of life by adventure and work, and individual initiative.

Social Security, and individual enterprise, represent absolutely conflicting economic ideas. They cannot exist side by side. It is not possible to have individual freedom and Social Security.

Any Government that promises its citizens bread and butter must also control those citizens under dictatorial management. Its citizens then become the slaves of government—not its masters.

Why do not the self-respecting people of this nation recognize this inescapable fact?

FOR OUR ARMED FORCES

INDUSTRIAL AMERICA HAS PLEDGED

ALL-OUT AND EVER-INCREASING PRODUCTION

FOR OUR ARMED FORCES

—THAT THEY MAY QUICKEN THE DAY OF VICTORY

—THAT THEY MAY RETURN IN SAFETY

—AND THAT THE WORLD MAY BE ASSURED

OF A LASTING PEACE



ABDOMINAL INVESTITURE

The 78th Congress of the United States convened in Washington on January 6th. We believe that it represents the people of the Nation. We also believe that in its hands rests the future of representative government, not only in this country, but in the world. Now is the time to prove that democratic representative Government will work and that communism, fascism, collectivism are different names for practically the same thing that is a throw back to the days of Genghis Khan.

But to make representative government work the representatives must have the assurance of their electorates that if they act as Americans they will be supported. If they feel that they are at the mercy of some minority group and are weak enough to succumb to that feeling how can they hope to represent the overwhelming majority of their constituents, who like most of us are seeking and striving for the common welfare.

The United States of America is the most powerful nation in the world. It is time that its government and citizens recognize that fact. Great Britain's tenacity is magnificent. Russia and China's doggedness of purpose and courage are an inspiration. But, just as 24 years ago, it is still Uncle Sam who can change the war picture from "taking it" to "dishing it out."

But it is necessary for our victory (Americans think in terms of VICTORY not in terms of self preservation) that every one of us have the same confidence in the functioning of our government that we have in the magnificent morale and organization of our armed forces. Our armed forces have proved themselves by performance. It is time that our governmental officials, elective and appointive, start to perform with the same degree of personal courage. If a soldier or sailor can fight a German or a Jap with his life at stake then a Congressman can fight a labor bloc or a farm bloc or a silver bloc if he is sure that his fight is for the good of his Nation.

Let us all show a few "guts." Those of us who are worrying about the attitude of the Income Tax Bureau, or whether if we are not good boys our war contracts will not be renewed, might remember that along with 130,000,000 others this is our country and Washington is our government. It is what we make it and if we are sheep or guinea pigs why are we fighting this war?

A man should prove by thought and act, by the conduct of his own life that the sacrifices now being made by our sons and brothers are not being made in vain.

REPRESENTATION WITHOUT TAXATION

In 1819, John Marshall then Chief Justice of the United States Supreme Court in announcing the decision of the Court said in part:

"The Government proceeds directly from the people; is 'ordained and established' in the name of the people. . . Its powers are granted by them, and are to be exercised directly on them, and for their benefit.

"The Government of the United States then, though limited in its powers, is supreme. . . It is admitted that the power of taxing the people and their property is essential to the very existence of Government, and may be legitimately exercised . . . to the utmost extent to which the Government may choose to carry it.

"That the power to tax involves the power to destroy; that the power to destroy may be defeat and render useless the power to create . . . are propositions not to be denied. But all inconsistencies are to be reconciled by the magic of the word CONFIDENCE.

"Taxation . . . does not necessarily and unavoidably destroy. To carry it to the excess of destruction would be an abuse to presume which would banish that confidence which is essential to all government."

His words today, in the day of the income tax, are

even more true than they were when he spoke them. We who pay taxes are asking for CONFIDENCE.

According to preliminary statistics the number of income tax returns filed for the year 1940 was 14,475,740, but only 7,389,317, or about half of this number paid a tax on the returns that were filed.

This same year, 1940, the national presidential election brought out a vote of 49,815,312. This is almost seven times the number who paid even the smallest income tax.

These figures do not make CONFIDENCE on the part of those paying the taxes. This is representation without taxation.

We believe that every man poor or rich should be taxed. He should be made to feel that he is a part of his government and that his government is his organization and is in his pay. We believe that the most equitable way to do this is by a general sales tax. If the money is not spent, and no tax paid, that same wealth, unless hoarded, is added to the nation's capital resources and enriches the nation's financial position.

You can not gain CONFIDENCE by giving forty-nine million people the ability to tax seven million and leave forty-two million not paying a cent themselves. That way lies tyranny—tyranny of the mob.

MINERAL PRODUCTION

IN 1942

BREAKS ALL RECORDS

THE South, together with the rest of the United States, produced more metals and minerals in 1942 than at any time in its history.

What the exact tonnage and value was, is not yet known but, on the basis of previous years' production, the South last year had a mineral output valued at approximately \$3,153,000,000 while that of the entire country was estimated at \$7,525,000,000 according to the Bureau of Mines.

Of this total, \$4,060,000,000 was the value of mineral fuels, \$2,330,000,000 was for metallic products, and \$1,135,000,000 for nonmetallic minerals. Still larger values are anticipated in 1943.

With a total estimated value of \$7,525,000,000, the mineral production figures were broken down to show the value of metallic products as \$2,330,000,000; mineral fuels, \$4,060,000,000; and other non-metallic minerals, \$1,135,000,000. Larger values are anticipated in 1943.

Nearly all of the mineral products which go into tanks, planes, guns, ships and other weapons with which to fight the Axis were turned out at unprecedented rates

in 1942. Output of aluminum and magnesium — the light metals largely produced in the South and so greatly in demand for making warplanes—increased severalfold over 1940. Iron ore and pig iron—the backbone of the vital steel industry — reached new levels and the production of ferro-alloys increased about 11 percent in quantity.

Copper production also established new marks, while chromite, molybdenum, vanadium, tungsten, cadmium, barite, fluorspar, potash, phosphate rock and highgrade clays, many of which come principally from the South, also achieved record outputs. Domestic manganese ore production was the largest on record since the last war.

Despite difficulties in obtaining equipment and a large turnover in manpower, bituminous coal production in 1942 increased 13 per-

The only domestic sources of bauxite, from which aluminum is made, are located in the South. Much of this is in Arkansas where the picture below was taken showing surface mining, though large new deposits have recently been opened in Georgia.



Mineral Production In the South

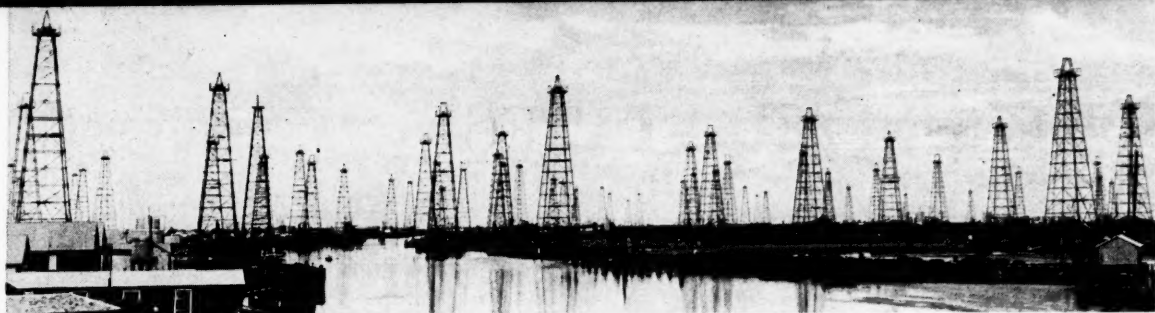
Between 40 and 45 percent of the value of the nation's mineral output comes from the South. Of the minerals commercially produced, the South normally contributes the following:

Bauxite	100%
Sulphur	nearly 100%
Phosphate rock	over 95%
Ball clay	over 95%
Barite	over 90%
Carbon black	over 90%
Kaolin	nearly 90%
Fuller's earth	nearly 90%
Natural gas	over 70%
Mica	over 70%
Natural gasoline	over 65%
Petroleum	nearly 60%
Bituminous coal	nearly 50%
Fluorspar	over 45%
Lead	over 40%
Feldspar	over 35%
Stone	over 35%
Zinc	nearly 35%
Limestone	nearly 35%
Lime	nearly 35%

cent over 1941 and was nearly equal to the Nation's all-time peak production in 1918. The combined production of by-product and beehive coke was the highest in history and represented a gain of more than 5,000,000 tons over 1941.

Minerals used in construction were on the upgrade generally, with cement sales increasing 10 percent, sand and gravel up 7 percent, and stone, about 9 percent. The exceptions were lime and gypsum, which showed a decrease due chiefly to shrinkage in civilian construction.

A slight decline in crude petroleum production was reported as the result of transportation difficulties which necessitated regional restraints on consumption, although there was a gain of 3 percent in value over 1941. Gold and silver production was curtailed to



From oilfields throughout the South like this one in Louisiana is coming almost 60 per cent of the petroleum, which, in one form or another, is so vital to this nation and its allies in the war.

conserve manpower and scarce materials. The smelter production of zinc from both foreign and domestic ores reached an all-time high.

The following summary prepared by the Economics and statistics Service of the Bureau of Mines presents the highlights of the nation's mineral production during 1942, insofar as censorship requirements permit.

Metallic Products

Light Metals. — Although production goals established early in the year were not reached, there were large increases in production of aluminum and magnesium resulting from the enormous demand for these metals in aircraft construction and for other military purposes. The usual delays incident to the introduction of new processes and the starting of new plants were experienced and construction schedules were hampered in some instances by slow deliveries of structural materials and equipment. Bauxite production was greatly expanded to meet the increased demands of the aluminum plants and as a safeguard against interruption of shipments from South America.

Steel and Iron. — Production of steel ingots again exceeded previous records and called for peak production of iron ore and pig iron. Iron ore shipments in 1942 are estimated to have totaled 106,000,000 long tons valued at \$280,000,000 compared with 93,053,994 tons valued at \$249,705,903 in 1941. Blast furnaces produced 59,000,000 net tons of pig iron compared with 55,223,641 tons in the previous year. Production of ferro-alloys increased about 11 percent in quantity.

Copper, Lead and Zinc. — Mine production of copper, lead, zinc was higher in 1942 than in 1941, copper establishing a new peak output. Slab zinc production also established a new record.

Mineral Fuels

War requirements for fuels resulted in increased production of all classes except crude petroleum which declined slightly due to the unusual curtailment of consumption in the Eastern region.

Petroleum. — The total demand for all oils in 1942 approximated 1,558,000,000 barrels, a decline of about 2 percent from the record established in 1941. The decline of about 10 percent in the total demand for motor fuel was largely balanced by increases of about 5 percent in the total demand for residual fuel-oil and 9 percent in the total demand for distillate fuel-oil.

The production of crude petroleum in 1942 amounted to about 1,385,000,000 barrels with an estimated value at the well of \$1,620,000,000, representing a decrease of over 1 percent in quantity but a gain of about 3 percent in value compared with 1941.

The demand for domestic crude petroleum was about 1,397,000,000 barrels in 1942, compared with the revised figure for 1941 of 1,420,000,000 barrels, a decrease of about 1.6 percent. The demand for domestic crude petroleum was sustained by a sharp drop in total imports and by a gain in total exports, but these factors were offset by a much greater liquidation of stocks of all oils, by the decline in total demand for all oils, and by an increase in the production of natural gasoline. The decline in the demand for crude oil and the heavy liquidation of stocks of refined oils, particularly in the East Coast district, were reflected in a decline of about 5 percent in the total crude petroleum run to stills during

1942 which is estimated at about 1,335,000,000 barrels.

Production of natural gas and natural gasoline increased moderately in 1942 to new peaks in both quantity and value. Natural gas is expected to exceed 3 trillion cubic feet in 1943.

Bituminous Coal. — Increased industrial activity, together with the substitution of bituminous coal for large quantities of fuel oil, resulted in the production of 576,000,000 net tons of bituminous coal and lignite in 1942, according to preliminary estimates of the Bituminous Coal Division, Department of the Interior. This was an increase of 65,000,000 tons over 1941. The estimated value of the 1942 production was \$1,365,000,000.

Coke and Coke Byproducts. — The combined production of byproduct and beehive coke in the United States in 1942 of 70,500,000 net tons was the highest ever attained. Output of byproduct coke was 62,300,000 tons, an increase of 6.5 percent over 1941; whereas beehive coke production was 8,200,000 tons, or 22 percent above the 1941 output. The continued upward trend was accounted for by the increasing demands for metallurgical fuel by the iron and steel industry.

The estimated values of coke produced were: byproduct, \$380,000,000; beehive, \$49,000,000; total byproduct and beehive, \$429,000,000. The combined value of coke byproducts, including breeze, tar, ammonia, light oil, and derivatives, at producing plants, was \$183,570,000.

Other Nonmetallic Minerals

Production of minerals used primarily in construction was predominantly upward. Cement sales increased about 10 percent, largely because of important military construction projects such as airfields and military roads. For the same

(Continued on page 56)

The UNITED STATES TRANSFORMED

IN 1942 the United States transformed itself from the world's greatest producer of peacetime goods to a producer of the machines and equipment of war at a rate unequaled by any other nation. At the end of the year the United States was producing shooting equipment at a rate more than four times faster than in November 1941.

In early February the might of America's greatest industry was loosed against Hitler; production of automobiles was stopped, and the industry which had produced 5,000,000 cars and trucks in a year set its manpower and inventive genius to work tooling up for tanks, planes, guns and other weapons. In quick succession came limitation orders to insure that steel, copper, aluminum and a score of other materials went into war goods, and that industry went to work producing them. Within a few months the great consumers durable goods industries were virtually shut down, as such, for the duration.

The conversion phase unfolded and manufacturers who couldn't make a war product separately pooled their resources and took a contract together. Most prime contractors let out subcontracts by the dozen, some by the hundred.

Altogether, about 70,000 prime contracts and 700,000 subcontracts were let during the year.

Construction boomed. Airfields, cantonments, barracks, ammunition plants, synthetic rubber plants, housing for war workers—contracts were let and work was rushed throughout the land. The 1942 construction program within the United States totaled some 12 billion dollars—the greatest in history. Deliveries of machinery and equipment added another 3.5 billion. In relation to resources, the program was too big.

The production curve climbed steadily. In March the rate of

munitions production was twice what it had been in November 1941. By June it was three times greater, nearly 4,000 planes were produced in May.

On the anniversary of Pearl Harbor the American people, their allies and their enemies were told that 1942 would see production of approximately 49,000 planes, 32,000 tanks and self-propelled artillery, 17,000 anti-aircraft guns larger than 20 mm., and 8,200,000 deadweight tons of merchant shipping. There was the additional satisfaction that most items—particularly planes—were bigger and more complicated than those con-

WAR OUTPUT—1942†

Airplanes	49,000
Tanks and self-propelled artillery	32,000
Antircraft guns (20mm. and over)	17,000
Merchant ships (deadweight tons)	8,028,000*

*Includes 254 ships with tonnage of 2,671,500 tons built in southern shipyards.
†Figures announced December 7, 1942 by the Office of War Information.

WAR FINANCE*

Authorized war program as of Nov. 30, 1941	\$ 64,000,000,000
Authorized war program as of Nov. 30, 1942	238,000,000,000
Expenditures as of Nov. 30, 1941	13,800,000,000
Expenditures as of Nov. 30, 1942	61,800,000,000
Daily rate of expenditure in November 1941	67,000,000
Daily rate of expenditure in November, 1942	244,500,000

*Cumulations are from June, 1940.

PLANT EXPANSION

Government commitments for war plant expansion, June 1940 - October 31, 1942	\$13,551,000,000
Private commitments for war plant expansion, June 1940 - November 30, 1942; 11,277 Certificates of Necessity Approved	3,722,000,000

MANPOWER

War workers December 1941	6,900,000
War workers December 1942	17,500,000

*World's record
producer of
peace time goods
sets record of
war time
production*

templated when the goals were set.

Other figures and comparisons help to tell the story of production accomplishments for 1942. In 1941 the United States spent \$13,800,000,000 for defense. In 1942, \$52,500,000,000 was spent for war. In the first World War rate of expenditures hit a peak of about two billion dollars a month. By the end of 1942, the rate exceeded 6 billion dollars a month.

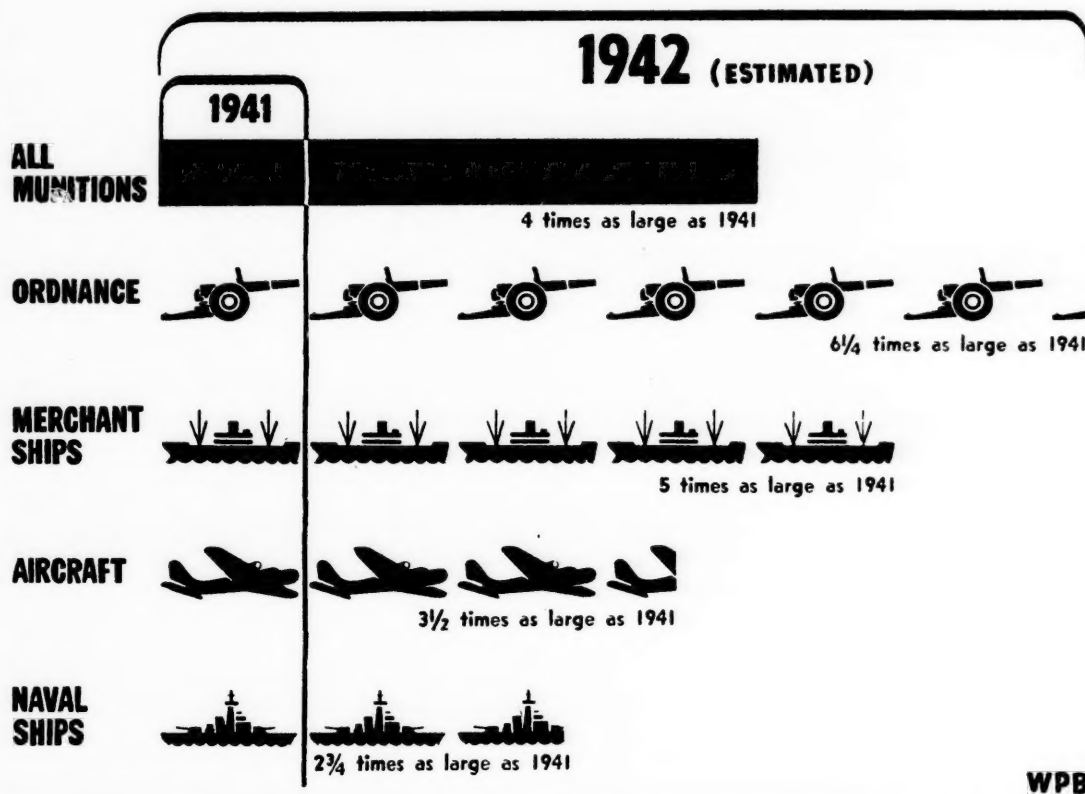
Three and one-half times as many aircraft—bombers, fighters, transports, observation and trainers—were produced in 1942 as in 1941. Production of guns, large and small, and of tanks and ammunition, was six and one-quarter times 1941 production. Naval vessel production was two and three-quarters times and merchant shipping five times.

By the end of the year the monthly rate of U. S. military plane production was twice that of Germany's. The U. S. and the United Kingdom together were producing two and one-half times as many planes as all of Axis Europe combined. United States war production at the end of 1942 was equal to that of all the Axis nations, and the United Nations were out-producing the Axis almost 2 to 1.

As 1942 ended, the United States grimly entered its second year of war with a revised, integrated war production program geared to make the military and civilian supplies necessary for the ultimate victory.

While providing for a lean, but sound and healthy civilian econ-

RISE IN MUNITIONS PRODUCTION



omy, the program for 1943 anticipates munitions production double that of 1942. Great importance in the strategic plans for this year is placed on aircraft, merchant shipping and naval escort and combat vessels. The program has been adjusted as a means of insuring the production of these items far above the rate achieved last year. It provides, for instance, for:

About twice the number and about four times the weight of planes built in 1942, with emphasis continued on bombers designed to carry the maximum destruction to the enemy fighting forces and industrial centers.

More than twice the merchant ship tonnage of 1942 in order to assure delivery of critically needed supplies to our ground and air forces and those of our Allies.

A considerable increase in the naval escort vessel program in

order to afford protection for merchant shipping operating on supply lines to all corners of the globe.

More naval combat vessels so that our sea power will be able to carry the fight to enemy fleets and operating bases.

Each of these component programs has been fitted into the master program. They comprise for the most part, the items that are difficult to make; ones that require large quantities of material, component parts, skilled manpower and special facilities.

Some other items in the master program are relatively easier to make and it was possible during the last year to reach a satisfactory production level. The urgencies of the theatres of military operation also bear a direct relation to the make-up of the program.

These factors and the necessity for insuring the production of the more difficult items has resulted in

some reduction in the program for items needed by the ground and armored forces, among which are tanks, artillery, motor vehicles and ammunition. Compared with the over-all program, the average percentage of reduction is small.

Regardless of how the master program is made up and balanced, it must be kept within an over-all limit dictated by the supply of available raw materials, manpower, and other resources. This basic principle has been followed in laying out the 1943 program.

In its broad aspects it has been adjusted for the first quarter to the estimated supply of approximately 19.6 million ingot tons of carbon steel, 3.4 million ingot tons of alloy steel, 700 thousand tons of copper and about 560 million pounds of aluminum. By the last quarter of 1943 the supply will be substantially increased and a cor-

(Continued on page 52)

ELECTRIC LIGHT AND POWER INDUSTRY IN 1942

OUTPUT of electricity in 1942 by all agencies contributing to the public supply totaled approximately 188,500,000,000 kilowatt hours, an increase of 20,330,000,000 kw. hours, or 12 percent over the production in 1941.

Of the total output, fuels produced 125,300,000,000 kilowatt hours, an increase of 7 percent and waterpower produced 63,200,000,000, an increase of 23 percent over output in 1941. This remarkable gain in hydroelectric production reflects the breaking of the drought which prevailed east of the Mississippi for the greater part of last year as well as the further installation of 1,000,000 kilowatts of hydroelectric generators during 1942.

America Produces Two-Fifths of World's Power Supply

In addition to the production by public utilities, a considerable number of manufacturing plants and mines produce their own electric power. These plants are estimated to have generated some 46,500,000,000 kilowatt hours during the year.

If to the production of public utilities is added this production of their own power by manufacturing plants and mines, the grand total output of electric power from all sources in the United States is 235,000,000,000 kilowatt hours. Estimating from previous rates of growth and various indications of subsequent construction programs, the probable world production of power in 1942 was about 600 billion kilowatt hours and the probable production in Axis dominated areas about 200 billion kilowatt hours.

Electric Power Supply Proves Equal to War Demands

All demands for electricity for the munitions and armament of the armed forces have been successfully met in every section of the nation; the requirements for

By

C. W. KELLOGG

President, Edison Electric Institute

civilian use have been covered without resort to curtailment or rationing and the margin of reserves for the country as a whole has been increased substantially over last year's levels.

Along with the progressive construction of new munitions plants the conversion of existing facilities has freed for the production of war materials much of the load which was formerly devoted to peacetime and civilian uses. Largely as a result of these characteristics of the war effort, utility sales of industrial power increased only 16 per cent in 1942 notwithstanding the enormous increases in war expenditures of 377% during the same period and the corresponding increase in the production of munitions. Industrial power sales rose from 76,000,000,000 kilowatt hours in 1941 to 88,000,000,000 in 1942.

At the same time, and in the face of dim-outs, daylight saving and other factors, the other uses of electricity have shown an only slightly less vigorous growth from 64 billion kilowatt hours in 1941 to an estimated total of 71 billions in 1942; an increase of 7 billion kilowatt hours, or 11 percent.

Generating Capacity Nears 47,000,000 Kilowatts

Approximately 2,920,000 kilowatts of new generating capacity were added to the public utility power houses during 1942 and some 200,000 kilowatts were retired, leaving a net increase of 2,720,000 kilowatts for the year and bringing the grand total of generating capacity to approximately 47,000,000 kw. This compares with a net increase of 2,450,000 in 1941 and, except for the boom year of 1925, represents the largest annual increase in generating plant in the history of the industry. After de-

ducting equipment retired from service or reduced in capacity rating, the net gain in steam generating equipment was 1,655,000 kilowatts, by hydroelectric plants 1,011,000 and in internal combustion engines 54,000 kilowatts.

Electric utility companies added 1,600,000 kilowatts of net capacity, Federal Government and district projects added 1,045,000 and municipal systems added 75,000 kilowatts.

Additional 3,384,000 Kilowatts Scheduled for 1943

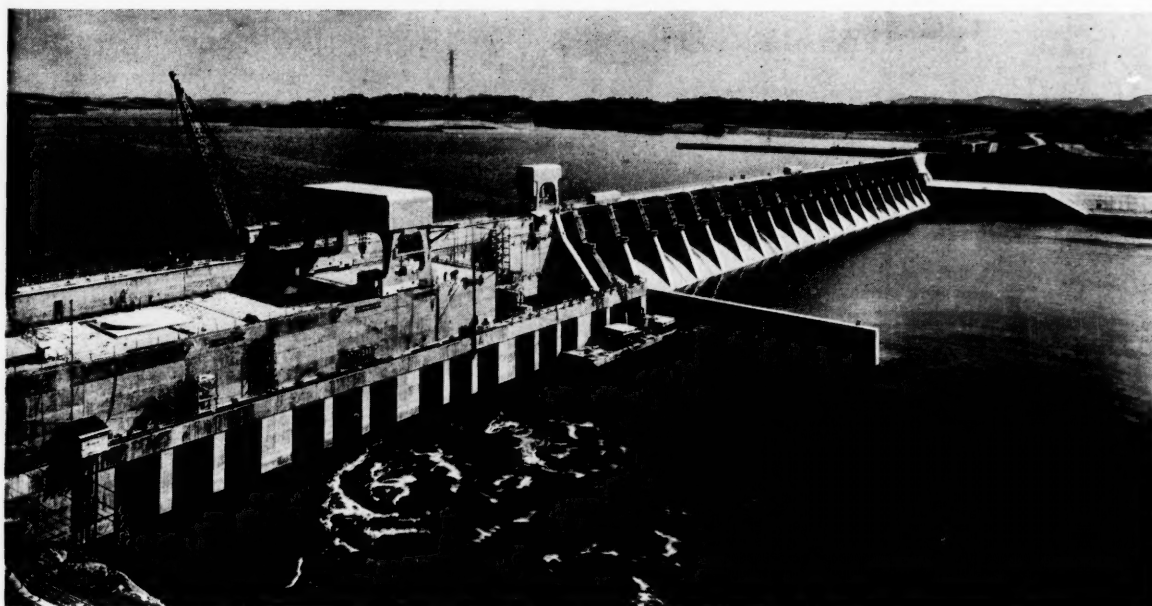
In line with the recently announced policy of the Federal government to restrict all types of construction to enterprises capable of early completion, about 2,800,000 kilowatts of prospective power installations were ordered cancelled by the WPB in 1942. The bulk of this cut affects generating equipment schedules for 1944 and 1945.

The total net increase in generating capacity scheduled for 1943 is 3,384,000 kilowatts, with 521,000 for 1944 and 195,000 for 1945, making a total during the next three years of 4,000,000 kilowatts.

Margin of Reserves Increased In 1942

The sum of the noncoincident peak loads at the generating stations for December, 1942, for all stations contributing to the public supply, is estimated to have been 37,000,000 kilowatts. This is about 5 percent above the figure for last year and is 10,000,000 kilowatts below the total installed capacity of these generating stations. The same margin last December was 9,000,000 kilowatts, so that the margin of reserve capacity was increased during the year by 1,000,000 kilowatts.

For the group of larger (or so-called Class I) utilities reporting to the Institute, the sum of the noncoincident peak loads for December is estimated to have been



One of the South's newest dams as it neared completion. Dams such as this were the source of nearly one-third of the South's total electric power production.

33,000,000 kw. as compared with approximately 31,500,000 kw. in 1941. This figure of 33,000,000 kw. for these larger systems is 8 per cent below the estimates made by them a year ago, and is nearly 20 per cent below the forecast of the Federal Power Commission of a year and half ago. Daylight saving time introduced in February of this year affected these earlier estimates by about a million kilowatts, or 3 percent of the total. Other factors in the over-estimates made a year ago were insufficient allowance for decrease in the non-defense industrial load and the failure of war loads to materialize as rapidly and as much as had been anticipated.

Construction Expenditures Next Year to be Cut in Half

In 1942, the electric utility companies of the United States spent, in round numbers, \$482,000,000 on new construction. This compares with a total of \$592,000,000 in 1941 and \$622,000,000 as the budget for 1942 proposed last year. Because of limitations on the supply and use of materials the actual expenditures were only 78 percent of the amount budgeted. The curtailment, however, was largely in distribution and general plant where only 65 per cent of the budget was expended and compares with 86 per cent for generating and transmission facilities.

The principal items are approximately as follows:

	1942 <i>Budget</i>	1942 <i>Expenditures</i>	1943 <i>Budget</i>
Generation	\$261,195,000	\$224,000,000	\$129,000,000
Transmission	108,022,000	94,000,000	30,000,000
Distribution	226,551,000	148,000,000	90,000,000
General	26,177,000	16,000,000	7,000,000
	\$621,945,000	\$482,000,000	\$256,000,000

1943 Outlook—Ample Capacity in Every Sector

In view of existing margins of reserves in generating capacity and scheduled additions to this capacity in 1943, it now appears that in every sector of the country there will be ample generating capacity to serve the peak demands reasonably to be expected. This takes into account existing trends in power demands and all the new demands for power that are in sight for this year or can be anticipated at this time. No power shortage is on the horizon for 1943, when America's war effort is expected to be at its peak.

According to financial reports for the first ten months of the year

(with November and December estimated) operating expenses and depreciation rose at about the same rate as revenues, while State and local taxes showed only a slight change. As a result, net income after all charges, but before Federal taxes, is expected to show a

gain of some \$55,000,000 or 6½ per cent, over a year ago. Federal taxes, however, have increased from \$300,000,000 last year to an estimated total of \$410,000,000 in 1942. This rise of \$110,000,000 in taxes wipes out all of this gain in net income and leaves the balance for stockholder's return and surplus some \$55,000,000 less than it was last year.

The total of all taxes—Federal, State and local—is estimated at \$635,000,000 for the year 1942. This represents an increase of \$114,000,000 or 22 per cent, coming on top of an increase of 29 per cent last year. During the four years 1938 to 1942, taxes on electric
(Continued on page 52)

RESINS

as

RUBBER SUBSTITUTES

POLYVINYL resins, now so vital as rubber substitutes that they have been placed under mandatory allocation by the War Production Board, have "arrived" in the plastics world.

A decade of normal research and development compressed into a

cause, despite great increases in production capacity, there are not enough to satisfy all military needs.

used in making degaussing cables to protect precious ships against certain types of mines.

The prominence of these plastics in the war economy climaxes an engrossing chapter in the history of industrial chemistry, one which started in Europe about the turn of the century. The continental laboratories discovered these compounds and pursued research off and on for 20 years without de-



few months by military urgency has adapted these plastics to varied war roles, and unfolded another vital material for the new world envisioned after the war.

The Baruch Committee hailed the vinyls as a substitute saving the equivalent of 22,000 tons of crude rubber a year. The WPB placed them under allocation be-

War-time applications for polyvinyl compounds are increasing faster than they can be made. Polyvinyl butyral—once used only as the plastic interlayer for laminated safety glass in automobiles—now coats a fabric from which light, long-wearing raincoats are made for soldiers. Polyvinyl alcohol is molded into oil-resistant tubing and gaskets for airplanes and trucks. Polyvinyl acetate is used instead of rubber latex in midsoles for shoes. Polyvinyl chloride is

veloping any plastic of commercial value.

Interest shifted to Canadian and American laboratories in the middle '20s, and the vinyls were investigated as finishes. In probing various formulas for finishes, chemists found they had interesting plastic properties, and several had some of the characteristics of crude rubber—toughness, flexibility, and good adhesive qualities. Research toward vinyls as plastics was intensified but little of commercial value materialized immediately.

Years of research and substantial sums were expended before, in

Most people think of plastics as hard, molded objects. In the photos on this and the facing page is shown one of the most significant developments in modern chemistry, where resinous composition is as flexible as a textile fabric, stretches like rubber and has a high degree of transparency. This polyvinyl acetal resin, or Butacite to give it its better known trade name, is made from a resin compounded with other ingredients to form a dough, which is extruded through a slit to form continuous sheeting and is then freed of solvent before being wound up for shipment. This material in various forms is now in such heavy demand for war purposes that the public will have little opportunity to see it again until after the war. In peace time, Butacite was used largely as an interlayer in laminated safety glass.

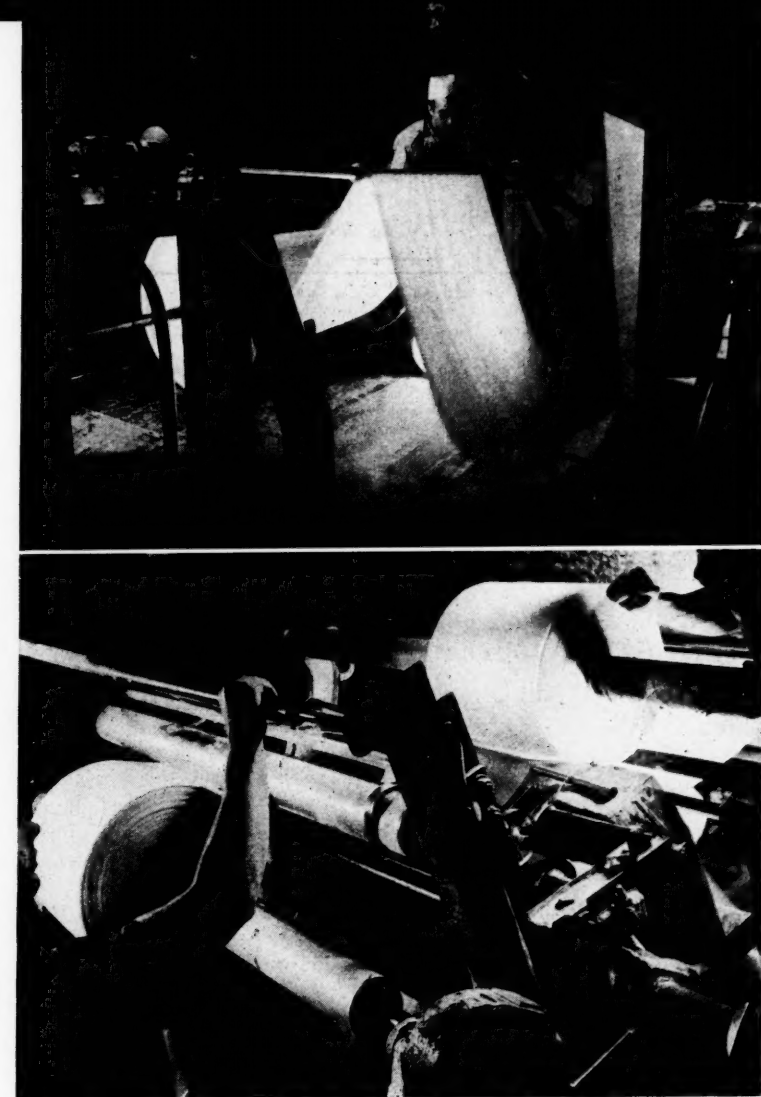
1938, the first big use was found—the plastic inter-layer for laminated safety glass. Du Pont and others introduced polyvinyl butyral sheets that year. Broken glass adhered better to this flexible plastic than to ones previously used, and it did not discolor with age.

Meanwhile, other polyvinyl compounds began to widen their scope. Suspenders, belts and other items employing a polymerized combination of vinyl acetate and vinyl chloride found favor. Tubing, gloves and aprons of highly oil-resistant polyvinyl alcohol were welcomed in factories. Tubing was used as the inner lining of gasoline hose because of its oil resistance. Polyvinyl acetate was accepted as a superior adhesive and paper coating. Yet aside from polyvinyl butyral, the vinyls had not “arrived” spectacularly. The quantity produced was comparatively small, and large outlets had not been exploited.

Then, almost overnight, rubber became one of the most critical materials in America. Industry, the armed forces, scientists, sought substitutes. Plastics, wood, metals, fibers, anything to replace precious pounds of rubber, were tried. Polyvinyl resins proved very useful, readily replacing rubber in many important war items.

Some polyvinyl butyral still was needed to make safety glass for transparent sections of airplanes and for windows of tanks, trucks and other military equipment. There was excess capacity when automobile production stopped, but all this and a great deal more soon were needed.

Not only raincoats, but bags for



transporting drinking water, hospital sheeting for military and civilian use, life rafts and belts for the navy and merchant marine, food bags, and waterproof, oil-resistant suits for seamen are made from a butyral coated fabric, rather than from rubber.

This plastic saves one and three-quarters pounds of crude rubber in each raincoat. Though developed as a substitute, chemists feel sure it will replace rubber for coating some fabrics even when rubber again is plentiful.

Polyvinyl butyral has other war jobs. Various formulations replace rubber in extruded tubing, in clamps to prevent vibration of fuel lines on airplanes, and in confidential military applications. It is finding use as an adhesive replacing rubber latex, particularly in the shoe and paper industries.

Other military applications include shatterproofing material for windows in war factories and army

barracks; sound dampening material for pick-up microphones; adhesives for plywood. A variety of new civilian goods already have been developed in laboratories.

Oil-resistant tubing and gaskets for airplanes and trucks are important uses of polyvinyl alcohol. It has others. Tough, transparent sheets may be made into food packages. It is used to grease-proof food containers for soldiers and civilians. It “sizes” military textiles. It replaces strategic metals when used in the manufacture of printing plates. It also has a number of undisclosed military applications.

Polyvinyl acetate, polyvinyl chloride and various formulations of the two have a long list of wartime applications. Polyvinyl acetate in emulsion, for example, is a rubber latex substitute, replacing this scarce material in midsoles for shoes. It also is used in gas-proof fabrics and as an adhesive.

COMPRESSING DEHYDRATED FOODS

AT a time when wasted shipping space may delay the day of victory, it is folly to export water and air to Europe, Africa and half-way around the world to the Southern Pacific.

Yet the carrying of ordinary natural foodstuffs involves much waste of this sort. Recognizing this, the authorities in charge of provisioning the Allied armed forces and the millions of civilian lend-lease consumers early took steps to avoid unnecessary hauling of water. They ordered dehydration of much of the food. This process reduced the space from 50 to 90 per cent on various items. It also improved keeping qualities and in many cases ruled out the need for refrigeration.

Now the next logical step was to squeeze out that other space-rober, air. This is being done in a new process which compresses dehydrated foods into blocks or briquettes. The additional space-saving achieved by compression ranges from 30 percent for dried whole milk to 80 percent for cream of cabbage soup.

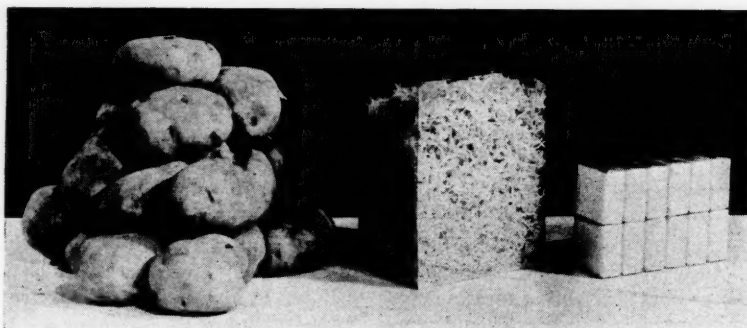
As each block of food is compressed it is immediately wrapped in moisture-proof cellophane, which is then heat-sealed. The film is germ-proof and grease-proof, and thus affords maximum protection to the food while taking up a minimum amount of space.

The War Production Board and

the U. S. Army Quartermaster Corps have been much interested in this innovation. Should the compressed food idea find adoption by the government agencies it would figure in the biggest dehydration program ever undertaken. Colonel Paul P. Logan, of the Subsistence Branch of the Quartermaster General's Office, has stated that more than a billion pounds of dehydrated foods, including eggs, meat, milk, vegetables and fruit are planned for 1943. For most of these items 10 pounds of raw food are required to make one pound of dehydrated food. Thus approximately ten billion pounds of American food will be used in this program.

Telescoping a meal into a few cubic inches comes close to the capsule-meal idea with which imaginative popular writers have toyed for years. But the new process doesn't take the joy out of eating. A square of compressed potatoes about half the size of a pack

The new compression process carried out at sub-freezing temperatures, is well illustrated in the picture below. At left are nine pounds of raw potatoes. Center, in exhibit container, is an equivalent amount after shredding and dehydrating have reduced them to 18 ounces. Squeezing in a hydraulic press further reduces the volume by 75 per cent as shown by the block of 12 cakes at right. Each cake, which will reconstitute in water to make servings for two persons, is enclosed in a moisture-proof container which also safeguards against contamination by germs, dust and grease.



*Thirty to eighty
percent more space
saved by new
process which
removes air*

of cigarettes can be crumbled into water and in a few seconds it swells into mashed potatoes sufficient for two people. A package no larger than a small shoe box contains compressed potatoes for 100 men.

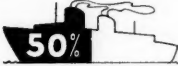









Eggs, because of their high nutritive value, have been an important lend-lease and Army item. After unfortunate experiences trying to ship fresh eggs to England, the authorities shifted to dried eggs, which are easier to keep and take only a sixth as much space as fresh ones in the shell. When compressed, the dried eggs occupy only half as much space as before. A fourteen-pound package of one-pound blocks of dried eggs contains the equivalent of 537 eggs.

A variety of vegetables, including beets, carrots, onions, as well as soup mixes, have been put up in compressed form and experiments have also included puddings, ice-cream mixes, flour, and pre-cooked cereals. An unusual feature of all of the foods compressed by this process is the quick restoration to their original shape. When the cellophane wrapper is opened the contents can be easily emptied into the dish or saucepan, and resume their former fresh consistency after only a few seconds of mixing in hot water.

A feature of the method is the use of sub-freezing temperatures before and during compression. The dehydrated material is quick-frozen at temperatures ranging from 20 above to 20 below zero Fahrenheit, depending on type of

COMPRESSION WILL CONSERVE TRANSPORTATION-MEN-MATERIALS

as indicated below—with ships alone

EGGS	50% Reduction	50%	
SOUP	35% "	35%	
COFFEE	42% "	42%	
BEEF	65% "	65%	
POTATOES	75% "	75%	
BEETS	65% "	65%	
CARROTS	55% "	55%	
ONIONS	65% "	65%	
DRIED WHOLE MILK	30% "	30%	
CHOCOLATE PUDDING	47% "	47%	
PLUS WAREHOUSES, TRUCKS, FREIGHT, FUEL and MANPOWER			

food product. This cooling keeps the fat globules of the food from breaking down under the subsequent pressure, it is explained. Both the temperature and the pressure, as well as the time of compression, are adjusted to the particular food being prepared.

It has been found that cellophane, because of its excellent moisture-proof properties and its general suitability as a food wrapper, gives ideal protection to the compressed foods. And the film is applied on high-speed wrapping machinery. In fact, standard cellophane wrapping machines, such as those used for cigarettes, can, if properly equipped, be adapted to the wrapping of the pellet provisions. The food can be compressed at the rate of 120 cakes per minute,

and the wrapping and sealing machinery can more than keep pace with that. The touch of the hot sealing bar on the cellophane wrapper is so momentary that the heat does not have time to reach the contents.

Experience to date indicates that compression and the resulting reduction of the food surface exposed to the air cause the dehydrated eggs, vegetables, meat and other foods to keep much longer than the dehydrated but uncompressed form. Compression squeezes out most of the air and thus reduces the opportunity for oxidation, one of the contributing causes of food spoilage. The cellophane wrapper protects the contents from moisture, another enemy of stored food, as well as from germs, greases and

Chart shows how compression of dehydrated food would save valuable cargo space. The complete outline of ship represents space occupied by ordinary loosely packaged dehydrated food. White portion is the fraction required when the dehydrated food is compressed. Dark portion is the amount of space saved. Note 75 per cent saving in case of compressed potatoes. Comparison with fresh foods would show even greater space saving.

dust. A quantity of dehydrated eggs compressed and wrapped in cellophane four years ago is still good.

The Auto Ordnance Company of Greenwich, Conn., makers of the Thompson sub-machine gun, has developed the process for making this "nutritional ammunition," and the Du Pont Company's Cellophane Division has collaborated in solving the packaging problem.

North Carolina Corundum Mines May Be Reopened

Possibility of reopening North Carolina's old corundum mines—unworked since 1918—is seen in a report made at the request of the WPB by the Minerals Resources Division of the Department of Conservation and Development.

The report, completed last week and now ready for publication, was prepared by Dr. J. L. Stuckey, State Geologist, and Dr. William A. White, associate geologist, who did the field work.

Examination of the old workings, principally in Clay, Jackson and Macon counties, indicate it would be practical to reopen some of them, says the report, and testimony of former corundum miners in that section is that there remain sizable deposits of the abrasive in the filled-in shafts. Several of the larger mines are accessible by highways and railroads. While the report notes that some of the veins probably have pinched out, it adds that a number of the larger mines were still producing a rich grade of corundum when the collapse of the market caused them to close.

The report suggests the possibility of mining corundum from less rich deposits heretofore neglected because of milling difficulties. It notes that some of the richer and better known deposits have been worked to such a depth that the remaining ore is some distance below the surface, whereas the ore formerly considered less valuable is easily accessible. Improved modern milling techniques might make recovery less difficult than was formerly the case.

In addition to the large mines in the three southwestern counties, less important deposits are known in Transylvania, Haywood, Buncombe, Madison, Yancey, Mitchell and in several Piedmont counties.

GEORGE WASHINGTON CARVER

GEORGE WASHINGTON CARVER, the noted scientist, who died January fifth, looked upon his work in the South among his people in the same way that a minister of the gospel does. But his was a ministry of chemistry. He is often referred to as "the first and greatest chemurgist," and because of outstanding achievements he received many honors and awards.

He received his bachelor's degree at Iowa State College in 1894 and his master's degree in 1896 when he joined the Tuskegee faculty. In England, his abilities in science were recognized by honoring him as a Fellow in the Royal Society of Arts, London; he held the Spingarn medal; the Theodore Roosevelt medal for achievements in science in 1939 as a "liberator to men of the white race as well as the blacks." Thomas Edison, especially interested in his work, invited him to join his staff at a salary of \$50,000 a year with no specified duties. His answer to this and all similar calls was "my life has been dedicated to the South and my job here has not been finished." Henry Ford offered the use of his laboratories for war-time food research and not long before he died was the guest of Mr. Ford at Dearborn.

Answering the cry to save wheat in the first World War, Dr. Carver invented a sweet potato bread. He sent the formula to Washington, where the "experts" refused to believe the bread was actually made from sweet potatoes. They sent for Dr. Carver who gave them a demonstration. The formula was accepted and the nation was advised to use it as a means of food conservation.

His record of products from such commonplace things as peanuts, sweet potatoes, clay soil, trees and other vegetation are numerous and among others include—milk of half a dozen kinds, butter, cheese, sherbet, breakfast foods, flour, instant coffee, Worcester sauce, vinegar, pickles, salad oils, confection, soft drinks, soaps, face powder, complexion cream.



George Washington Carver

shampoo, dandruff cure, axle grease, stock food, stains, paints, dyes, inks. In addition, numerous aids to agriculture and farming.

While absorbed in his own creative work, he was not unmindful of the great industrial expansion going on around him in the South, and was encouraged by the way that "big business" recognized the South as "the richest section of the United States because of its wealth of resources and the ideal place for the creative mind."

As a constant reader of the *MANUFACTURERS RECORD* he said in one of his letters to this office:

"I have read and re-read the editorial on the front cover of the *MANUFACTURERS RECORD*."

"I, with all readers of the *RECORD* and all others interested in the development of the South, cannot help but feel pretty chesty over the way big business is catching the vision that the South is indeed the richest section of the entire United States on account of its vast undeveloped resources. For this reason, I believe the South furnishes the ideal place for the development of the creative mind."

"I have been a constant reader of the *MANUFACTURERS RECORD* for

many years, and the dominant note has always been the vast manufacturing possibilities of the South, which you have so beautifully pointed out in your splendid editorial."

When the tariff on peanuts was being considered by the Ways and Means Committee of the House of Representatives, it was necessary to get reliable facts about the history, the then status of the peanut industry and its potentialities. "A Negro chemists" from Alabama was suggested as the first source of this information but the Committee at first skeptical finally agreed to invite him but must confine his time to ten minutes. Coming into the room humbly, with his card board box tied with a string, he was told to sit down and wait until he was called. When spare time was available, the chairman asked him to tell what he knew in ten minutes. Without interruption, he talked. He looked at his watch, began to tie the box and prepared to leave when his allotted time was up. The chairman and members of the Committee were so astonished at the value of the practical information revealed to them, Dr. Carver was told to go on without any time limit. For an hour he held the rapt attention of the Committee and for the rest of the afternoon he answered questions of the Committee members. From skepticism the attitude of the Committee changed to profound thanks.

Dr. Carver had a very simple philosophy. It may be compared with the subjective context of the famous lecture of Dr. Russell H. Conwell, a former head of Temple University "Acres of Diamonds." Here was told the experience of a farmer in South Africa who became discouraged with the results of his farm and when asked by a stranger for a price, he sold it for a pittance. With the money he traveled abroad in search of riches. With money gone he returned to learn that the stranger, aware of the nature and value of the

(Continued on page 52)

PREFABRICATED BARRACKS ASSEMBLED IN 90 MINUTES

PORTABLE barracks—the kind that begin as crates of prefabricated parts, and 90 minutes later are completely assembled buildings — are saving the United States time on all sides of the world. From Alaska to the Nile Valley, American armies on the move are now able to transport and erect their demountable buildings with an ease unknown in World War I.

The whole conception on which these barracks are founded is the saving in man hours which formerly went into the erection of old style barracks, built at the military location without benefit of today's prefabricating science. According to the National Housing Company, Dallas, Texas, which has built or contracted to build more prefabricated barracks for the United States Army than any other concern in the nation, a typical barracks twenty feet wide and forty-eight feet long can be assembled

in an hour and one-half by an experienced crew.

What is equally important, the structures are easily transported. One of National's standing barracks would more than comfortably hold a box car; yet four twenty-four man barracks broken down and crated will go into that same box car.

Developed in cooperation with government engineers and now being used in the Army's standard export unit, National barracks are built largely of plywood panels, easily and quickly bolted into place for walls, roofs, and even floors.

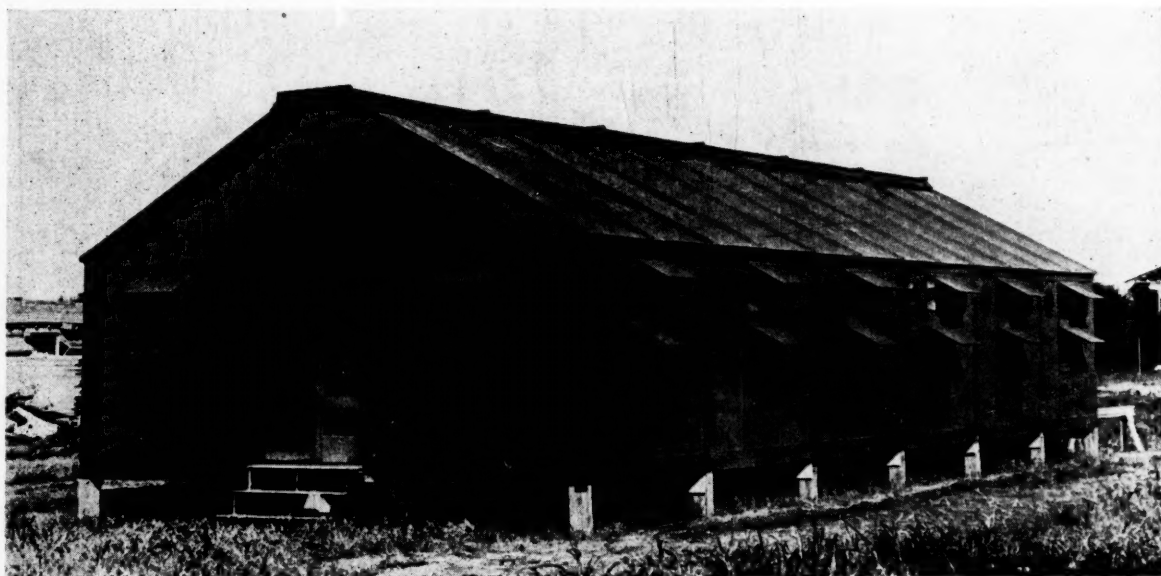
Although most of the earlier portable barracks were built for use in the tropics, today's units are designed for the arctic climates as well. Heat and cold are not the only problems that must be licked. Insects — an ever-present menace — must be defeated too. In a fashion similar to the sun-helmeted and fur-clothed soldier who is

protected by medical immunization against insect-borne disease, these barracks use treated lumber to fend off the threat of insects. Pressure-treated foundation posts, steps and other framing members in contact with the ground are impregnated with Wolman Salts preservative, blocking the entrance of termites and at the same time making sure that decay organisms will not shorten the life of the wood.

At the Dallas plant, barracks are built on the assembly line principle. (Most raw materials stay on the grounds less than forty-eight hours. Lumber which arrives early one morning is a part of the structures which are shipped out about the same time next morning.)

Glance at the following figures to get a mental picture of the job that is being done to win the war by military housing builders, in general, and National Housing Company, in particular. This organization cuts, fits and nails into barracks each week more than 1,500,000 board feet of lumber; turns out enough structures every two and one-half days which, if put end-to-end, would extend more than a mile; sprays almost 9,000 gallons of paint each week; uses almost 4,000,000 square feet of plywood every month — materials come from twenty-seven different states — movement of shipments requires 125 full car loads per

(Continued on page 56)



SOUTHERN CONSTRUCTION CONTRACTS BREAK ALL RECORDS IN 1942

by

S. A. LAUVER
News Editor

CONSTRUCTION awards for projects below the Mason and Dixon line in the twelve months just ended surged to the gigantic total of \$3,877,848,000 and thus exceeded by almost one billion dollars the previous record which occurred in 1941.

More than fulfilling expectations that 1942 would be a great construction year, the huge expenditures made during that period represented a continuation of the Federal defense program launched the year before. New funds were injected to accelerate the work to a war tempo.

War construction—both military and industrial—was chiefly responsible for the vast increases. Practically the entire \$3,877,848,000 total was Federally financed. About three per cent went for what ordinarily is considered private work. Most of this small percentage was for residential work in war areas and even that was to a great extent insured by the Federal government.

Federal Projects Highest

Federal projects, mostly in the form of military facilities and naval shore establishments, involved expenditure of \$2,054,782,000, the preponderant part of the year's total for all construction. Public housing contributed substantially with \$236,534,000.

Industrial construction in 1942 amounted to \$1,086,304,000, a figure slightly below the valuation placed on this type of work during the preceding year. The Federal government provided the funds for the majority of these projects, as they were practically all directly connected with war production.

Highway construction, although not as drastically curtailed as private building, has been vitally affected by war restrictions. The \$170,472,000 value of road and bridge awards in 1942, however, compares favorably with the \$169,295,000 for the twelve months preceding.

Southern highway departments have geared their programs to the war effort and are concentrating on access roads and the needs of war transportation. Contractors in that field have turned to practically the same kind of operations in the building of the many airports that necessarily must be established to service the huge increase in the country's aerial strength. These, with some dam and

other earthwork, involved \$338,988,000 last year in the South.

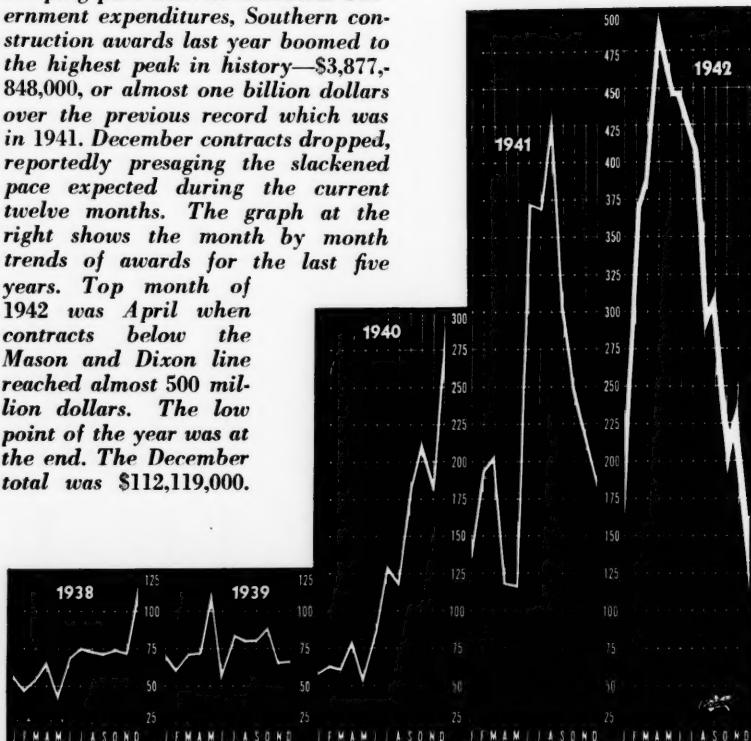
Drop Seen in 1943

Predictions for construction in 1943 all point to a slackening of the pace of last year. Prominent authorities all agree on this point. George A. Bryant, head of the Austin Company, sees little likelihood that the volume of domestic construction for war industries and continental defense will equal that for 1942.

Harold K. Ferguson, another widely recognized engineering and construction executive, president of the firm that bears his name, expects the volume to be somewhat over normal, but considerably less than during the past two years. He emphasizes what he calls small jobs—those costing under a million dollars.

"The trend," he points out, "will be to convert old plants to war work, rather than to build new ones, and with a year or so of operating experience behind them,

Keeping pace with astronomical Government expenditures, Southern construction awards last year boomed to the highest peak in history—\$3,877,848,000, or almost one billion dollars over the previous record which was in 1941. December contracts dropped, reportedly presaging the slackened pace expected during the current twelve months. The graph at the right shows the month by month trends of awards for the last five years. Top month of 1942 was April when contracts below the Mason and Dixon line reached almost 500 million dollars. The low point of the year was at the end. The December total was \$112,119,000.



**Officials
see drop
in 1943**

**Others look
beyond war
to plan for
aftermath**

South's Construction by States

	December, 1942		Contracts Awarded Twelve Months 1942	Contracts Awarded Twelve Months 1941
	Contracts Awarded	Contracts to be Awarded		
Alabama	\$7,711,000	\$1,186,000	\$182,884,000	\$250,254,000
Arkansas	8,922,000	2,085,000	105,157,000	263,885,000
Dist. of Col.	1,796,000	366,000	68,193,000	57,587,000
Florida	16,178,000	5,712,000	302,737,000	130,332,000
Georgia	7,403,000	5,540,000	199,100,000	170,013,000
Kentucky	3,945,000	145,000	111,848,000	125,316,000
Louisiana	12,509,000	2,261,000	277,875,000	210,292,000
Maryland	8,444,000	1,822,000	225,199,000	200,221,000
Mississippi	2,018,000	1,530,000	190,463,000	78,951,000
Missouri	2,073,000	1,506,000	186,169,000	125,830,000
N. Carolina	5,305,000	2,920,000	181,901,000	105,994,000
Oklahoma	2,298,000	3,030,000	212,086,000	144,309,000
S. Carolina	1,489,000	125,000	102,199,000	69,302,000
Tennessee	4,138,000	57,632,000	286,002,000	170,959,000
Texas	21,830,000	2,379,000	943,228,000	507,510,000
Virginia	4,100,000	2,859,000	258,330,000	202,231,000
W. Virginia	1,060,000	3,155,000	38,477,000	109,822,000
TOTAL	\$112,119,000	\$111,353,000	\$3,877,848,000	\$2,922,808,000

many manufacturers will have sufficient information available for rearrangements in layouts and facilities to give them more and cheaper production.

"As the demands of our overseas forces grow," Mr. Ferguson continues, "we will find that contracts will be awarded for plant expansion and additions rather than for entirely new plants, and in some industries the expansion programs will be large.

"At this stage, it is difficult for us in the industrial engineering and building field to realize what a normal year means, and the drop in volume of business from 1942 to 1943 may seem very great. We must remember, however, that 1942 has been by far the biggest year in the history of the industry, and particularly so in the specialized field of industrial building."

Authorities Look Beyond War

Other authorities look beyond the war—to the time when peace at last will come to a war-torn world. Maj. Gen. Philip B. Fleming, administrator of the Federal Works Agency, is one of these. He observes that the problem will be far more complex and involved than it was in 1918. Pointing to the lack of plans when the P. W. A. was set up in 1933, General Fleming stressed the need for advance studies of what should be done after the present war and emphasized highway construction as an opportunity for the private building industry.

A planned post-war program is also urged by Charles M. Upham, engineer-director of the American Road Builders' Association. "Full employment can exist only when there is high durable goods production," he declares, and "construction is the most important durable goods producer. The past two decades have proved that there must be a high level of activity in this industry if there is to be full employment. The nation's construction program in prosperous times is principally financed by private funds. This category consists largely of home building and industrial plant construction. Highways, roads and streets are financed by public funds. To stabilize the national economy, it is necessary to stabilize the construction industry. When private construction activity declines, public construction should increase to equalize it."

Mr. Upham explains "the average highway construction program in normal times is about \$500,000,000. After the war, regardless of the employment situation, there will be an urgent demand for a larger program than this to provide for the lapse in new highway construction now taking place. But, more important from the purely economic angle is the necessity for a program enough greater to counterbalance any fluctuation in the private program. To plan for an annual program of from \$2,000,000,000 to \$3,000,000,000 is within reason and would be a safeguard against large unemployment which must not occur."

Current construction is beginning to catch up with war needs in the opinion of H. E. Foreman, managing director of the Associated General Contractors of America, noting that operations are at near capacity as far as expenditures are concerned, but that the rate of award of new projects is definitely falling off.

Opportunity in Small Jobs

Mr. Foreman states that existence of the construction industry is vital to every

community in the country. "Even in the absence of any large projects," he says "the maintenance of the physical plant of the United States cannot be neglected without courting disaster. Breakdowns and damage from whatever cause must be quickly remedied. The facilities of the construction industry have a vital relation to civilian defense. The construction industry has a right to consideration for preservation during this emergency."

The major possibility, as Mr. Foreman sees the problem, "lies in the securing of the opportunity of handling small construction operations or repair operations which are being handled by maintenance crews of industrial plants and commercial establishments." He is sure that this presents the opportunity for conservation of both manpower and of critical materials.

Charles T. Penn, vice-president of the Indiana Limestone Corp., views present plans for after the war operations as "encouraging although still far from vigorous." Chief opportunities in the construction field are in private building activity and enterprise, particularly in housing and urban redevelopment.

Mr. Penn expects the housing revival of the late thirties, which at present has been interrupted by war restrictions, to be resumed after the war. The housing program should make up deficiencies of the last depression period; he sees a greater demand for houses to cost over \$6,000 than there was in the 1930 decade. There will be a surplus of lower-priced houses, and higher national income will foster the demand for better living quarters, thus expanding the market for private builders and investors.

Urban Renovation Expected

"Redevelopment of blighted urban areas is more than likely to develop into real large scale programs," continues Mr. Penn, who observes that a number of people are advocating that this should be done on a national scale with subsidies

(Continued on page 54)

South's Construction by Types

	December, 1942		Contracts Awarded Twelve Months 1942	Contracts Awarded Twelve Months 1941
	Contracts Awarded	Contracts to be Awarded		
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)		\$315,000	\$4,386,000	\$19,041,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	\$90,000	27,000	4,804,000	28,441,000
Residential (Apartments, Hotels, Dwellings)	5,105,000	415,000	108,833,000	142,851,000
Office	10,000	15,000	1,253,000	12,684,000
	\$5,205,000	\$772,000	\$119,276,000	\$203,017,000
INDUSTRIAL	\$13,742,000	\$42,140,000	\$1,086,304,000	\$1,400,469,000
PUBLIC BUILDING				
City, County, State, Federal	\$48,749,000	\$39,614,000	\$1,785,320,000	\$735,233,000
Housing	13,284,000	10,371,000	236,534,000	61,374,000
Schools	617,000	2,371,000	32,928,000	39,360,000
	\$62,650,000	\$52,356,000	\$2,054,782,000	\$826,902,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	\$9,519,000	\$7,862,000	\$338,988,000	\$135,347,000
Federal, County, Municipal Electric ..	585,000	135,000	21,990,000	61,374,000
Sewers and Waterworks	9,644,000	1,728,000	86,036,000	26,404,000
	\$19,748,000	\$9,725,000	\$447,014,000	\$223,125,000
ROADS, STREETS AND BRIDGES ...	\$10,774,000	\$6,360,000	\$170,472,000	\$169,295,000
TOTAL	\$112,119,000	\$111,353,000	\$3,877,848,000	\$2,922,808,000

Important New Industrial Plants and Expansions in the South During December

ALABAMA

ETOWAH COUNTY—Railroad—Royce Kershaw & Co., Montgomery, has contract for railroad construction for U. S. Engineer Office, Gadsden; \$100,000 to \$499,999.

Additional Plant Facilities—Defense Plant Corp. increased its contract with Reynolds, Inc., Richmond, Va. to provide for additional plant facilities; in excess of \$2,900,000.

ARKANSAS

EL DORADO—Rubber Plant—McGraw Construction Co., reported, has contract for butadiene plant in connection with facilities of Lion Oil Refining Co.

FLORIDA

MIAMI—Shop, etc.—Dade County Dry Dock Co., has permit and work will be started soon for \$30,000 concrete block shop and office building back from Biscayne Blvd. at N. E. Eighth St.; plans by Robert E. Collins, Archt., 1270 N. W. 11th St.

MIAMI—Shop and Office—Dade County Dry Dock Corp., N. E. 8th St. and Bay, has permit for shop and office; concrete block; day labor; cost \$30,000; Robert E. Collins, Archt., 1270 N. W. 11th St.

KENTUCKY

Synthetic Rubber Plant—Rubber Reserve Co. made contract with the National Synthetic Rubber Corp., to operate a new government-owned synthetic rubber plant to be built in Kentucky by the Defense Plant Corp.; five independent companies which participate in the ownership of National Synthetic Rubber Corp. are Goodall Rubber Co., Inc. and Hamilton Rubber Manufacturing Co., both Trenton, New Jersey; Hewitt Rubber Corp. of Buffalo, New York; Lee Rubber & Tire Corp. of Conshohocken, Pa. and Minnesota Mining & Manufacturing Co., St. Paul, Minn.; Dr. B. J. Oakes of Minnesota Mining and Manufacturing Co., has been chosen executive vice president and general manager in charge of operations of plant; scheduled for completion in 1943.

Plant—Defense Plant Corp. awarded contract to Commodity Credit Corp., Washington, D. C. for construction and equipment of plant in Kentucky; \$350,000.

LOUISIANA

NEW ORLEANS—Generators, etc.—Linde Air Products Co., New Orleans, has contract for 6 acetylene generators of 500 lb. capacity with necessary central units and panels and Chris Larsen Co., Maritime Bldg., has contract for colored dressing room at Delta Shipyard on Florida Avenue; American Heating & Plumbing Co., Inc., 829 Baronne St., contract for sewer line at the shipyard; O. O. Carpenter, plant facilities engineer.

NEW ORLEANS—Compressor—American Heating & Plumbing Co., Inc., 829 Baronne St., has contract for installing compressor at Todd-Johnson Shipyard in Algiers; W. Horace Williams Co., 833 Howard Ave., New Orleans.

NEW ORLEANS—Aircraft—Higgins Aircraft, Inc., made contract with War Department to construct airplanes of the C-76-H-1 type to be powered with two 1830 P. & W. engines; virtually the entire plane will be of plywood; it is probable that company will produce its own plywood; now working with the Defense Plant Corporation in making necessary arrangements for factory at Michoud, which is within city limits of New Orleans; property which is to be used was prepared by Higgins Corp., to build Liberty Ships for the Maritime Commission; area

Contracts Awarded

upon which the plant is to be built, has been filled with a type of solid soil; surface has been lifted well above the level of the highway; Albert Kahn Associated Architects and Engineers, Inc., New Center Building, Detroit, Mich. will prepare plans; contractors tentatively selected to build the plant are Turner Construction Co. and Raymond Concrete Pile Co.

OAK POINT—Addition—Bechtel-McCone-Parsons Corp., 601 W. Fifth St., Los Angeles, Calif., has contract for new plant for California Co., 1818 Canal Bldg., New Orleans, to manufacture additives for Diesel engine and heavy duty motor lubricating oil at Oak Point; total cost \$700,000; equipment includes mixers, tanks, pumps, piping and utilities; erect 6 wood frame buildings, providing altogether about 15,000 square feet of floor space.

SHREVEPORT—Plant—Atlas Oil and Refining Corp., Atlas Bldg., has contracted with Hudson Engineering Corp., 2711 Danville St., Houston, for construction work incidental to the conversion of refinery for production of a butylene-butadiene fraction; contractor will issue purchase orders covering the material necessary to make the conversion.

MARYLAND

BALTIMORE—Warehouse—Elmer D. Wilson, Inc., Newark, New Jersey, has contract for electric work on warehouse and agency building, 240-44 N. Franklinton Rd., for Jack H. Lehman, National Biscuit Co., Lessee; A. A. La Fountain, Inc., Hackensack, New Jersey, Gen. Contr.; Adolph Grant Co., Newark, New Jersey, contract for tile; Arthur P. Starr, 1711 Connecticut Ave., N. W. Washington, D. C., Archt.

BALTIMORE—Office Building—Leimbach & Williams, Inc., 30 W. Biddle St., has contract for office building and guard house, Key Highway for Bethlehem Steel Co.

BALTIMORE—Plant Facilities—Defense Plant Corp. announced contract with Davison Chemical Co., Curtis Bay, to provide plant facilities in Maryland at cost over \$100,000.

BALTIMORE—Addition—F. G. Schenult Rubber Co., 3901 51 Clipper Rd., erect 2-story, brick addition; Kubitz & Koenig, Engr., Emerson Tower Bldg.; owner builds.

BALTIMORE—Buildings—United Engineers & Constructors, Inc., 1401 Arch St., Philadelphia, Pa., has contract at \$40,000 for generator building, 1900 Chesapeake Ave., at \$18,000 for compressor and filling room, at \$10,000 for service building, and at \$7000 for generator room, all rear of 3430 Fairfield Rd. for Defense Plant Corp.

BALTIMORE—Office—Chesapeake Construction Co., 2223 Kirk Ave., erect 1-story; cinder block office building; owner builds.

BALTIMORE—Alteration—Armiger Construction Co., 2127 Maryland Ave. has contract for alterations to building, 704 E. Baltimore St. for Jacob Burke.

BALTIMORE—Storage Building—Baltimore Steel Drum Co., rear 1543 Ridgely St. erect 1-story; concrete block storage building; owner builds.

BALTIMORE—Storage Tank—William J. Wiesand, 216 E. Lexington St. has contract for storage tank, 1800 Frankfort Ave. for Gulf Oil Co.

CURTIS BAY—Storage Bins—Fanning & Schuett Engineering Co., 4325 North Third St., Philadelphia, Pa., has contract for 6 grain storage bins for U. S. Industrial Chemicals, Inc.; cost \$40,000; William B. Neill, Engr., 30 Vesey St., New York City.

FAIRFIELD—Industrial Relations Building—Davis Construction Co., 9 W. Chase St., Baltimore, has contract for industrial relations building for Bethlehem-Fairfield Shipyard, Inc.

LINTHICUM HEIGHTS—Pumping Station Alterations—Frederick D. Carozza, 2444 N. Charles St., Baltimore, has contract for pumping station alterations for Consolidated Gas, Electric Light & Power Co.; 1-story; concrete.

MISSISSIPPI

OSYKA—Sawmill—H. V. Utterbach, formerly connected with Abram Lumber Co. at Amory, Miss. constructing sawmill and planer plant; has 25 acre tract; mill from Amory will be moved to Osyka; operate as Central Lumber Co.

MISSOURI

ST. LOUIS—Plant Addition—L. M. Parsons Corp., 6319 Manchester Ave. let contract to Robert N. Hinkson, Kirkwood, Mo. for 1 and 2 story addition to plant; concrete found.; asphalt roof; forced air, stoker-fired heating plant; 62x115 ft. and 40x60 ft.; cost \$20,000.

ST. LOUIS—Building—McCabe Powers Auto Body Co., 5900 N. Broadway, let contract to Al P. Daly for 1-story factory, 5815 Prescott St.; 60x150 ft.; concrete foundation; comp. roof; C. A. Koerner, Engr., both Syndicate Trust Co.; cost \$11,300.

ST. LOUIS—Plant—McCabe-Powers Auto Body Co., 5900 N. Broadway, has building permit for factory building, 5815 Prescott Ave.; 1-story; 60x150 ft.; concrete foundation; comp. roof; cost \$11,300; Al P. Daly Construction Co., Gen. Contr.; C. A. Koerner, Engr.

NORTH CAROLINA

Pumping Stations—George W. Kane Co., Jefferson Bldg., Greensboro, N. C., has contract at approximately \$100,000 for partial construction of 4 pumping stations for oil line extension from Greensboro to Richmond, Va. for Plantation Pipe Line Co., Guilford Bldg., Greensboro; stations will be located at oil terminal on Winston-Salem Rd. and near Yanceyville, N. C. and near Clarksville and near Blackstone, Va.; contract includes building stations, grading, landscaping, etc.; actual installation of equipment to be done under another contract; H. J. Hanlon, station construction engineer for Plantation Pipe Line Co.

SOUTH CAROLINA

YORK—Refrigeration and Locker Plant—Fiske-Carter Construction Co., Spartanburg, has contract at \$33,909 for electric cooperative refrigeration and locker plant for Electric Cooperative Refrigeration Co., Inc.; J. B. McCrary Engineering Corp., 22 Marjatta St. Bldg., Atlanta, Ga., Engrs.

TENNESSEE

CHATTANOOGA—Building—Mark K. Wilson, Loveman Bldg., has contract for cleaning structure and shipping building, Carter St., for Ross-Meehan Foundry; Robert N. Dulaney, Archt., Chattanooga Bank Bldg.

JACKSON—Repairs—Tennessee Iron & Metal Co., Meadow and G. M. and O. Rwy., make improvement to building; owner builds.

JOHNSON CITY—Addition—Ferenbach Silk Co., 234 W. Market St., construct addition and improvements to spinning room; day labor.

LEWISBURG—Expansion—Defense Plant Corp. let contract to Marshall Stove Co., to provide for building installation, equipment



and machinery for plant in Tennessee; over \$400,000.

NASHVILLE—Building—Goodlett Realty Co., 616 Commerce St., repair and remodel building; day labor.

NASHVILLE—Addition—Tennessee Enamel Co., 42nd Ave. North and Parkway let contract to W. L. Hailey & Co., for brick and conc. addition to plant; cost \$13,000.

TEXAS

CONROE—Office and Laboratory—The Fluor Corp., Ltd., Mellie Esperson Bldg., Houston, has contract for office and laboratory for Lake Creek Recycling Plant, care of Superior Oil Co., Lake Creek.

CORYELL COUNTY—Railroad—Martin & Grace, Dallas, Tex., has contract for railroad; over \$200,000; U. S. Engineer Office, Galveston, in charge.

DALLAS—Remodeling—Henger Construction Co., Dallas National Bank Bldg., Dallas, has contract for remodeling factory, 4100 Commerce St. for Mid-City Realty Co., P. O. Box 598.

PORT NECHES—Laboratory—A. L. Hays of Port Arthur, has contract for research laboratory and clinic building for Neches Butane Products Co. and Defense Plants Corp. at Port Neches rubber plant; brick and hollow tile; cost of the two buildings, \$73,000; projects sub-contracted under Lummus Co., 420 Lexington Ave., New York.

Plant—Defense Plant Corporation has authorized execution of a contract in excess of \$1,500,000 to provide machinery and equipment for plant in Texas; will be operated by Eastern States Petroleum Co., Inc., 630 Fifth Ave., New York.

WEST VIRGINIA

Pipe Line—Bechtel-Dempsey of Zanesville, O., contractor for laying the Marshall county section of the 24-in. crude oil pipe line from Longview, Tex. to the Eastern seaboard, establishing field office in Hotel Snyder Bldg., Moundsville; A. M. Burlander in charge; government engineers with quarters at Hotel Kreglow, making survey of pipe line route through Marshall county; western end of the line will be at or near Powhatan Point, O. and the Pennsylvania end in vicinity of Rock Lick and Rogersville; work on section of pipe line to be laid under supervision of the Moundsville field office will be started in Greene County, Pa., approximately 8 miles eastward from the West Virginia-Pennsylvania line; War Emergency Pipeline, Inc. was formed to construct the line; estimated cost \$35,000,000.

Pipe Line—Petroleum Administrator, Harold L. Ickes, announced selection of following contractors to construct the 857 mile Eastward extension of the 24-in. pipeline from Norris City, Ill. to Phoenixville, Pa. and East Coast ports; 250 miles of the route of the Eastward extension has been staked and actual welding and laying of pipe will begin soon; contractors who have been issued letters of intent preliminary to awarding of formal contracts are: Sheehan Construction Co., National Bank of Tulsa Bldg., Tulsa, Okla.; Ray Smith, El Dorado, Kans.; Anderson Brothers, 113 N. Norfolk St., Tulsa, Okla.; C. S. Foreman, New York Life Bldg., Kansas City, Mo.; Bechtel & Dempsey, San Francisco, Calif.; Williams Brothers, Tulsa; O. C. Whitaker, Port Worth, Tex.; I. C. Little, Dallas, Tex.; Oklahoma Contracting Co., Dallas, Tex.; Midwestern Engineering & Construction Co., Tulsa, Okla.; Jones & Brooks, Oklahoma City, Okla.; Exeter Construction Co., Camp Hill, Pa.; War Emergency Pipelines, Inc., is supervising construction of line for the government.

SOUTH

War Production Board will allow the following projects to continue to completion: Aluminum pilot plant for extracting pure alumina from clay deposits and pyrometallurgical alumina pilot plant, both located in the South; projects suspended by former

order; R. R. Sayers, Director, Bureau of Mines, Department of the Interior, Washington, D. C.

Contracts Proposed

ALABAMA

BIRMINGHAM—Repair Shop—Brice Building Co., Inc., 215 S. Eighth St. low bidder for repair shop additions and alterations for Southern Railway Co.

BIRMINGHAM—Plant—Alabama Metal Lath Co., Frank D. Horton, Pres., 1631 Vanderbilt Rd., N. converting plant for manufacture war products.

United States Pipe & Foundry Co., Burlington, New Jersey, has acquired, through purchase, working control of Sloss-Sheffield Steel & Iron Co.; Sloss-Sheffield Steel & Iron Co. operates 4 blast furnaces, 2 city furnaces and 2 in North Birmingham with a combined capacity of between 550,000 and 600,000 tons annually.

Construction Program—Alabama Power Co., Birmingham, plans in 1943 a construction program of about \$4,700,000, based on preliminary studies; 1942 program will total about \$6,000,000; program for 1943 consists entirely of war-related projects; heaviest construction involves the completion of 100,000 KW. of additional steam-electric generating capacity now under construction; an additional 40,000 KW, 13.8 KV, 800 lb., 850° F. unit is being installed in Chickasaw plant near Mobile, and a similar unit, rated at 60,000 KW, is being installed at Gorgas Plant in Walker County coal fields adjacent to company's coal mine; Chickasaw addition is scheduled for completion early in 1943 and will raise the installed capacity of this plant to 80,000 KW; the Gorgas addition is scheduled for completion in summer of 1943 and will raise the installed capacity at Gorgas to 190,000 KW; these additions will raise the Company's total installed generating capacity to 703,200 KW of which 287,700 will be steam electric; company has in operation and is rapidly completing the development and equipping of a coal mine near Gorgas Steam Plant; this mine is being developed to produce 350,000 tons of coal in 1943; a number of war projects are in prospect for 1943; some of these involve extensive relocation of transmission lines.

FLORIDA

Power Facilities—Federal Power Commission announced that it had amended its order of May 21, directing Florida Power & Light Co., and Clay Electric Cooperative Association, Inc., to interconnect their electric facilities to alleviate power shortages in northeastern Florida, by providing for a stronger and more direct connection at Keystone Heights, Clay County, instead of at Starke, as previously ordered; order announced resulted from a joint request by the Florida Power & Light Co. and the cooperative, and states that the rapid increase of war loads in the area has already made inadequate the interconnection ordered at Starke and requires an interconnection of greater capacity between facilities of Florida Power & Light Co. and Clay Electric Cooperative Association, Inc.; change has been cleared with the Power Division of War Production Board.

JACKSONVILLE—Expansion—City Commission approved sale of 5 acres of city property to Huckins Yacht Corp.; property includes site now occupied by ship-building firm as well as some additional land for expansion.

MIAMI—Addition—International Aircraft Corp.; I. A. Williamson, Plant Engr., has plans for construction of addition to administration building.

GEORGIA

Timber Land—Union Bag & Paper Co., Savannah, acquired 40,000 acres of timber land in South Georgia.

KENTUCKY

Hemp Plants—U. S. Department of Agriculture, Commodity Credit Corp., Wallace Ashby, Acting Director, Hemp Division, Washington, D. C., tentatively approved 11 sites for hemp breaking plants in Kentucky; sites are at Bowling Green, Guthrie, Henderson, Owensboro, Paris, Winchester, Danville, Nicholasville, Richmond, Shelbyville and Brooksville; War Production Board has assigned preference ratings for delivery of necessary materials for construction of mills and harvesting machinery; plants will be financed by Defense Plant Corp.; operated by newly-created Commodity Credit Corp. division headed by Samuel McCrory, will supervise the plants; each plant will service approximately 4000 acres of hemp; hemp fibre will be manufactured principally into cordage.

LOUISVILLE—Distillery—R. L. Buse Co., Carew Tower, Cincinnati, Ohio, acquired distillery in Athertonville, LaRue County and in Louisville.

LOUISIANA

LAFAYETTE—Dehydration Plant—Dallas Egg Drying Co., of Dallas, Tex., is moving its dehydration plant from Dallas to Lafayette; will have a 1000 case daily capacity; work at installing equipment will start at once.

NEW ORLEANS—Generator Building, etc.—Shourds-Hooten & Associates, Engrs., 642 Audubon Bldg., received following bids for buildings for Delta Shipbuilding Co., Inc.: American Heating & Plumbing Co., Inc., 829 Baronne St., low on Proposal 1—unload, set, erect and connect 6 acetylene generators, together with control units, etc., furnishing and laying new acetylene distribution pipe line system, also water and sewer connection and extensions; Gervais F. Favrot, Balter Bldg., low on Proposal 2, remodeling present west side manifold building and constructing new generator building.

MARYLAND

BALTIMORE—Blackout Facilities—Lucius R. White, Jr., 10 West Chase St., Archt., received bids Dec. 16 for blackout facilities at plant of Crosbe & Blackwell Co., 6801 Eastern Ave.; following estimated: Consolidated Engineering Co., 20 E. Franklin St.; Cummins Construction Corp., 803 Cathedral St.; Frantz Construction Co., 10 W. Chase St.; H. J. Dudley, 102 W. Chase St.; Morrow Brothers, Inc., 14 E. Eager St.; Leimbach & Williams, 30 W. Biddle St.

BALTIMORE—Office, etc.—The Koppers Co., American Piston Ring Division, Bush and Hamburg Sts., receive bids Jan. 4 for office and women's locker room; 2-story; brick and frame; following are prospective estimators: Morrow Brothers, Inc., 14 E. Eager St.; Leimbach & Williams, 30 W. Biddle St. and Davis Construction Co., 9 W. Chase St.

MISSISSIPPI

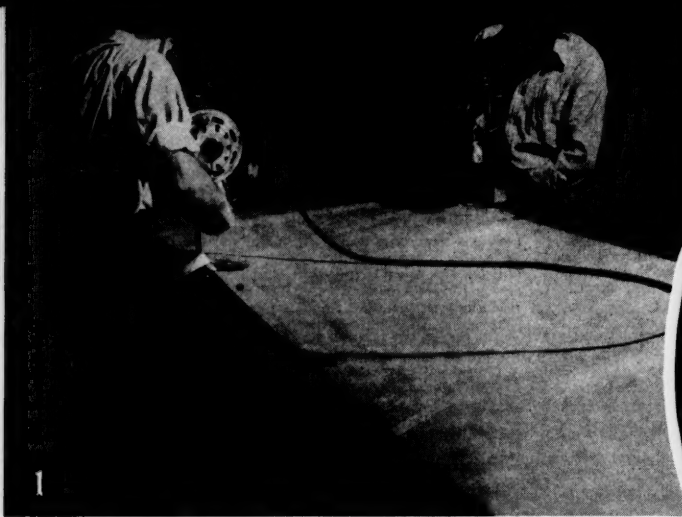
CENTERVILLE—Sewers—FWA, Oliver T. Ray, 20 Fifth St., Pine Blvd., apparent low bidder at \$90,275 for constructing factory, north side of Chestnut St. between 18th and 19th Sts.; heating, electrical work and sprinkler systems to be let separately; William B. Ittner, Inc., Archt., 408 Board of Education Bldg.

PASCAGOULA—Cafeteria—Ingalls Shipbuilding Co. soon call for bids for cafeteria and market; Jack B. Smith, Archt., Martin Bldg., Birmingham, Ala.

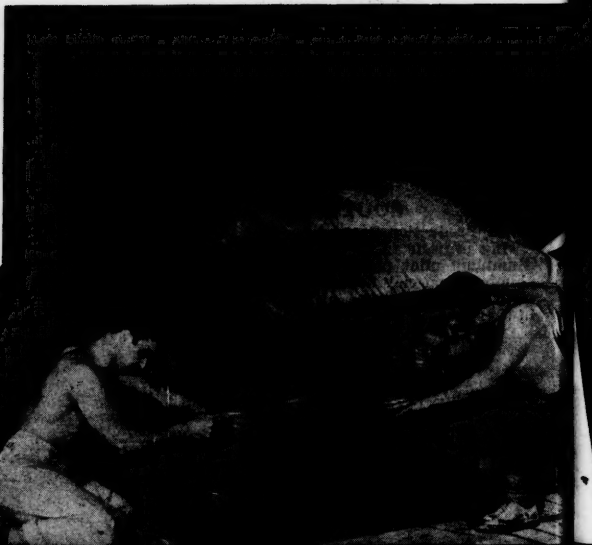
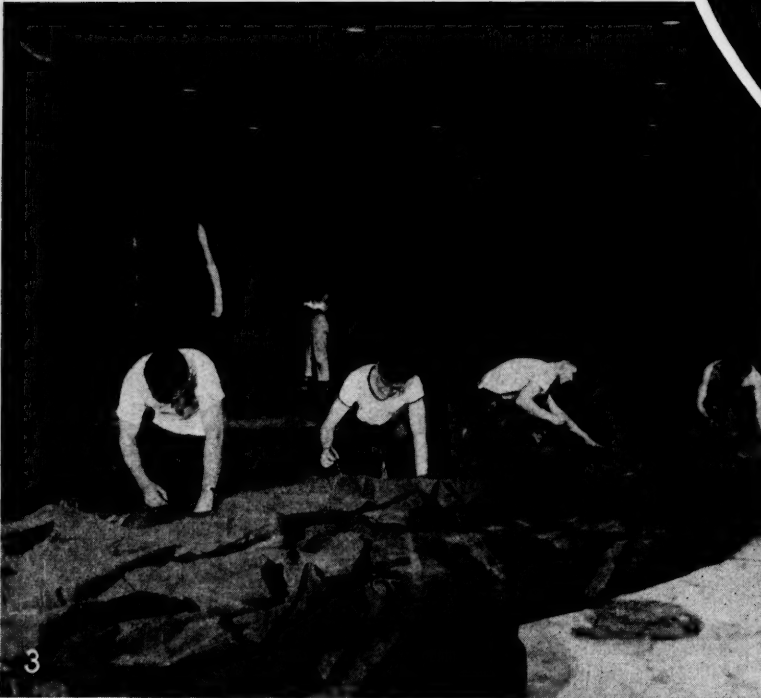
MISSOURI

KANSAS CITY—Alcohol Plant—National Distillers Products Corp. reported to operate alcohol plant to be erected by Government. (Continued on page 58)





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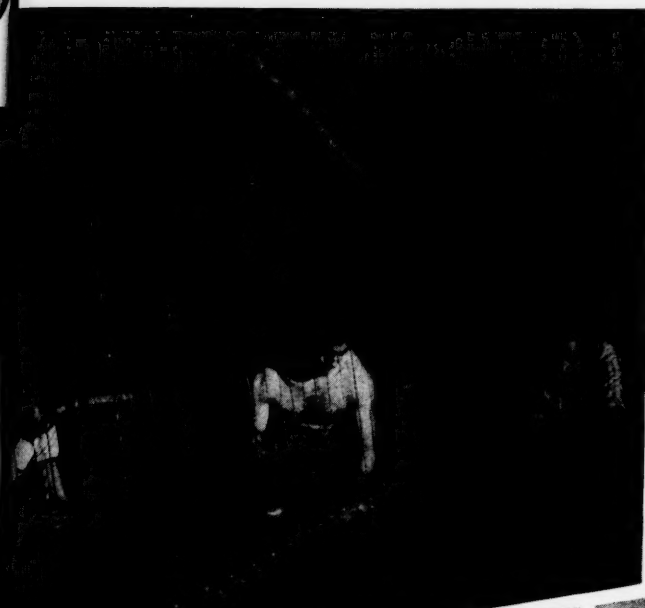
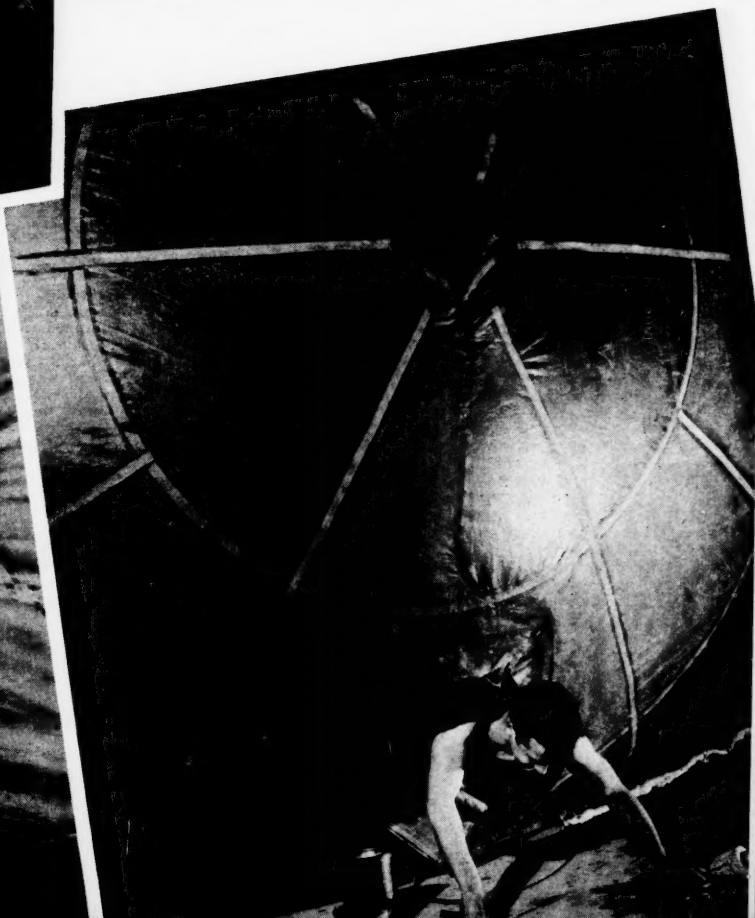
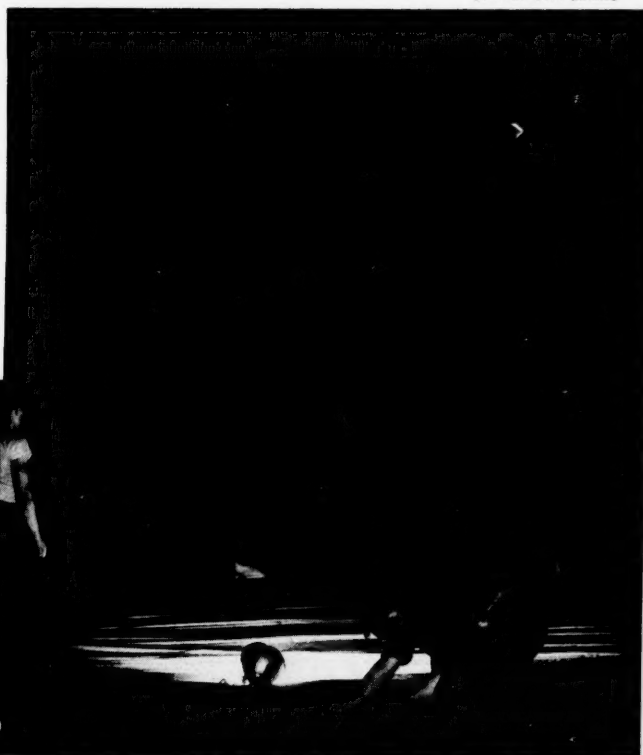


BARRAGE BALLOON MANUFACTURING

Using an electric cutter, several thicknesses of rubber fabric are cut for strips and "gores" for making barrage balloons. 2. Fitting the out-turned fingers of a fabric patch to the side of a balloon. Sewn and seamed, this "glove" is a webbing of rope which will become part of the bag. 3. Workers are ready to fasten one-half of a barrage balloon to the ground cable—the final major step. 4. Frayed ropes are attached to the rubber-fabric "fingers" by sewing and cementing to give maximum "grip" on the ground cable. 5. Four steps in final production: the half-balloon in the foreground is awaiting inflation; the nose of a ship on the water in the background is in the process of being deflated for packing and shipping; and the finished balloon in the background is being inspected for final O.K. before being shipped. 6. Putting double reinforcements on the right fin of a completed balloon before it is deflated for shipment. 7. Inside the rear right fin of a balloon, the ropes are checked which give the fin shape and hold it together. Since balloons are non-rigid and entirely collapsible, the ropes come closest to being a "back-bone." 8. Putting last touches on a completed balloon. To inspect the bag leaks, the light inside is turned off, leaving the workers in a midnight gloom. Then a co-worker on the outside shines a bright light, and works along the length of the entire balloon, back and forth, until he has covered every inch. 9. Tugging at the large hose, as the "inflation sleeve" this worker stands inside the "manhole" of the balloon to guide the sleeve into the opening through which it will

pump air to test for leaks. 10. Scrambling out of the zipper covered "manhole" in the nose of a balloon, this worker has finished patching, touching up and checking the great bag, and is ready to give the signal to deflate, pack and ship the balloon.

[Official OWI photos]



CONTRACTORS and SUB-CONTRACTORS WANTED

For information, blue prints, specifications, etc., on the following items write or telephone the Philadelphia or Baltimore office of the War Production Board, quoting the symbol number of the item in question. You will then be put in touch with the engineer assigned to that item. Please quote the Manufacturers Record.

Ref. Buescher-64-4

An Eastern shipyard requires 24 RUDDER QUADRANTS AND EMERGENCY TILERS. Equipment required: 70" chucking lathe or 70" vertical boring mill, slotter #4 horizontal milling machine, cutting torch, electric arc welder, 8" bench lathe, drill press. Overall Dimensions: Quadrant—12" deep x 10" long x 8" wide; Tiller—7" long x 19" wide x 7½" deep. Material: medium steel and cast steel—to be furnished by subcontractor.

Ref. Buescher-61-1

An Ohio Corp. requires 25,000 DISCHARGE VALVE SEATS. Material: Stainless Steel. Equipment required: Automatic Screw Machine, 1" Spindle, Hand Screw Machine, Drill Press, Flat Lapping Machine, ½" Diameter x 1/32" seat. Dimensions 1" OD x .328 width. Tolerance .002, threads NEF#3. Material to be furnished by contractor.

Ref. Buescher-59-5

A Government Agency requires additional facilities for machining two sizes of six throw AVIATION ENGINE CRANK-SHAFTS. Production requirements starting at 31 and 57 units per month, increasing progressively. Equipment required: Heavy duty lathe 24" swing 10" c.c., crankshaft grinder, thread grinder, heavy duty drill press, milling machine, balancing equipment. Heat treating required. Dimensions O. A. Lengths 37" and 48", main bearings 2½" and 2¾" crank throw 2½" and 2¾". All forgings furnished.

Ref. Buescher-67-1

A Government Agency requires 2400 AIR FLASK FORWARD HEADS. Eight required per day. Equipment required: Engine Lathe 24" swing, Radial Drill Press—3 feet, No. 4 Milling Machine, Heat Treating. Overall dimensions: 19.895" diameter. Depth of concavity 5.504". Tolerance—plus or minus .005 several plus or minus .002". Material—Alloy Steel; Forgings will be furnished.

Ref. Buescher-67-2

A Government Agency requires 2400 AIR FLASK AFTER HEADS. Eight required per day. Equipment required: Engine Lathe 24" swing, 3" Radial Drill Press, Heat Treating. Overall dimensions—19.285" diameter, 5.750" depth of concavity. Tolerance—plus or minus .005. Material—Alloy Steel; Forgings to be furnished.

Ref. Buescher-67-3

A Government Agency requires 2400 WATER COMPARTMENT HEADS Eight

required per day. Equipment required: Engine Lathe—24" swing, 3" Radial Drill, Heat Treating. Overall dimensions: 19.065" diameter 3" depth of concavity. Tolerance: plus or minus .005 several plus or minus .002 dimensions. Material—Alloy Steel; Forgings will be furnished.

Ref. Keefer-59-2

A Penna. manufacturer desires subcontracting facilities for an ADAPTER. Length ½", diameter 2-15/16". Made from cold rolled or hot rolled steel—W.D. 1115. Internal threading operation. Prime contractor needs 1,000 pieces per day. Equipment desired: Multi-spindle automatic screw machine.

Ref. Buescher-61-1

An Ohio Corp. requires 25,000 DISCHARGE VALVE SEATS. Material: Stainless Steel. Equipment required: Automatic Screw Machine, 1" Spindle, Hand Screw Machine, Drill Press, Flat Lapping Machine, ½" Diameter x 1/32" seat. Dimensions 1" OD x .328 width. Tolerance .002, threads NEF#3. Material to be furnished by contractor.

Ref. Buescher-65-1

An Ohio corporation requires 25,000 VALVE RETAINERS. Equipment required: Hand Screw Machine, 1 inch Spindle, Drill Press. Tolerance: .001 inch threads, 1 inch —20 NEF#3 fit. Dimensions: 1 inch O.D. x .328 inch width. Material: Stainless Steel, to be furnished by the contractor.

Ref. Buescher-64-1

A Penna. concern requires subcontracting facilities for the machining of reciprocating STEAM ENGINE CYLINDERS. Equipment required: 4' Radial Drill, Vertical Boring Mill, 129" Swing, 73½" under bar, Planer—width 80" equipped with top and side cutting heads. Overall dimensions: 93½" x 79.5" x 73½" high. Cylinder Bore Diameter —28.250 plus or minus .001 Tolerance Depth —.69¼" Steam Chest Bore—18" plus or minus .001. Tolerance Depth 64½". Material: Semi-Steel. Castings can be furnished either by prime or subcontractor.

Ref. Buescher-64-2

A Penna. concern requires subcontracting facilities for the machining of reciprocating STEAM ENGINE CYLINDERS. Equipment required: 6' Radial Drill, Vertical Boring Mill—112" swing, 73½" under bar, Planer—width 6" equipped with top and side heads. Overall dimensions: 72" x 106" x 73½" high. Cylinder Bore Diameter 37" plus or minus .002. Tolerance Depth—51½". Material: Semi-Steel. Castings can be furnished either by prime or subcontractor.

Ref. Buescher-64-3

A Penna. concern requires subcontracting facilities for the machining of reciprocating STEAM ENGINE CYLINDERS. Equipment required: 6' Radial Drill, Vertical Boring Mill 146" swing, 73½" under bar, Planer 104" width with side and top heads. Overall dimensions: 93.5" x 104" x 73½" high. Cylinder Bore—Diameter 70" plus or minus .002. Tolerance Depth 52¾". Material: Semi-Steel. Castings can be furnished either by prime or subcontractor.

Ref. Roystuart-64-1

A Penna. concern requires subcontracting facilities for the machining of reciprocating STEAM ENGINE CYLINDERS. Equipment required: 4' Radial Drill, Vertical Boring Mill, 129" Swing, 73½" under bar, Planer—width 80", equipped with top and side cutting heads. Overall Dimensions: 93½" x 79.5" x 73½" high. Cylinder Bore Diameter—28.250 plus or minus .001 Tolerance Depth—69¼". Steam Chest Bore—18" plus or minus .001. Tolerance Depth 64½". Material: Semi-Steel. Castings can be furnished either by prime or subcontractor.

Ref. Roystuart-64-2

A Penna. concern requires subcontracting facilities for the machining of reciprocating STEAM ENGINE CYLINDER. Equipment required: 6' Radial Drill, Vertical Boring Mill—112" swing, 73½" under bar, Planer—width 6" equipped with top and side heads. Overall dimensions: 72" x 106" x 73½" high. Cylinder Bore Diameter 37" plus or minus .002. Tolerance Depth—51½". Material: Semi-Steel. Castings can be furnished either by prime or subcontractor.

Ref. Roystuart-64-3

A Penna. concern requires subcontracting facilities for the machining of reciprocating STEAM ENGINE CYLINDERS. Equipment required: 6' Radial Drill, Vertical Boring Mill 146" swing, 73½" under bar, Planer 104" width with side and top heads. Overall dimensions: 93.5" x 104" x 73½" high. Cylinder Bore—Diameter 70" plus or minus .002. Tolerance Depth 52¾". Material: Semi-Steel. Castings can be furnished either by prime or subcontractor.

Ref. Roystuart-64-4

An Eastern shipyard requires 24 RUDDER QUADRANTS AND EMERGENCY TILERS. Equipment required: 70" chucking lathe or 70" vertical boring mill, slotter, #4 horizontal milling machine, cutting torch, electric arc welder, 8" bench lathe, drill press. Overall Dimensions:—Quadrant hub —12" deep x 10" long x 8" wide; Tiller—7" long x 19" wide x 7½" deep. Material: medium steel and cast steel—to be furnished by subcontractor.

Ref. Roystuart-59-5

A Government Agency requires additional facilities for machining two sizes of six throw AVIATION ENGINE CRANK-SHAFTS. Production requirements starting at 31 and 57 units per month, increasing progressively. Equipment required: Heavy duty lathe 24" swing 10" c.c., crankshaft

(Continued on page 52)



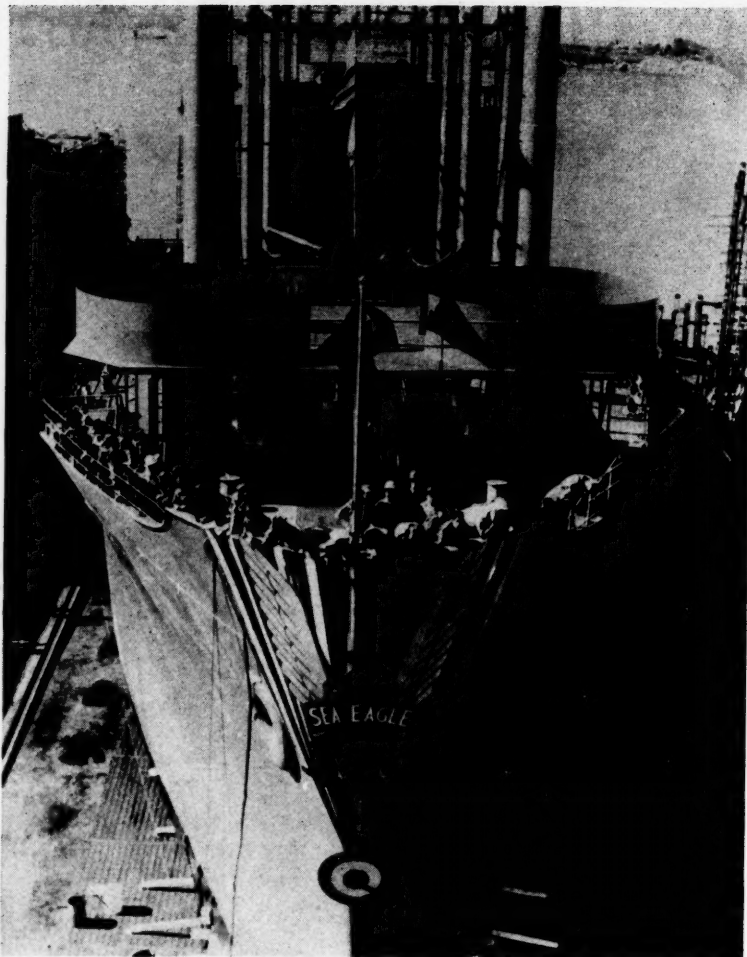
NEW PRIORITY ORDERS RECENTLY PUT IN EFFECT

"M" CONSERVATION ORDERS

Order	Addition	Title	Effective Date
M-1-d	Amended	Aluminum scrap	1- 1-43
M-1-g	Amended	Aluminum	12-31-42
M-2-b	Amended	Magnesium	12-31-42
M-9-b	Amended	Copper	12-23-42
M-9-c	Amended	Copper	12-26-42
M-9-c-3	Amended	Copper	12-28-42
M-11-a	Amended	Zinc	12-22-42
M-11-1	Amended	Zinc	12-22-42
M-14	Revoked	Steel, high-speed	12-14-42
M-15-b	Amended	Rubber and balata and their products	12-28-42
M-15-b-1	Amended	Rubber and balata and their products	12-28-42
M-15-b-1	Amended	Rubber and balata and their products	1- 1-43
M-21	Amended	Iron and steel	12-29-42
M-21-a	Amended	Alloy Iron and steel, and electric furnace carbon steel	12-14-42
M-21-b	Amended	Iron and steel	12-31-42
M-21-c	Amended	Tin plate, terne plate and tin mill black plate	12-11-42
M-21-d	Int. #2	Corrosion and heat resistant chrome steel	12-11-42
M-21-h	Amended	Tool steel	12-14-42
M-23-a	Amended	Vanadium	12-26-42
M-24-d	Amended	Iron and steel scrap	12-23-42
M-30	Amended	Ethyl Alcohol and related compounds	12- 2-42
M-36	Amended	Manila fiber and cordage	1- 4-43
M-38	Amended	Lead	1- 1-43
M-39	Amended	Cobalt	12-11-42
M-39	Amended	Cobalt	12-28-42
M-44	Revoked	Titanium pigments	12- 8-42
M-58	Amended	Glycerine	12- 9-42
M-63	Amended	Imports of strategic materials	12-17-42
M-63-a	Amended	Imports of strategic materials	12-14-42
M-63-d	Revoked	Imports of strategic materials	12-28-42
M-63-f	Amended	Imports of strategic materials	12- 8-42
M-68	Amended	Production material conservation for oil industry	1- 4-43
M-71	Amended	Fats and oils	12-17-42
M-71	Amended	Fats and oils	1- 1-43
M-73	Amended	Wool	12-10-42
M-80-f	Amended	Sole leather	12-31-42
M-81	Amended	Cans	12- 9-42
M-81	Amend. #1	Cans	1- 4-43
M-84	Amended	Agave fiber and products and certain other cordage	12-15-42
M-84	Amended	Agave fiber and products also certain other cordage	1- 4-43
M-86	Amended	Canned and processed foods	12- 9-42
M-86-b	Amended	Canned foods	12-24-42
M-86-c	Amended	Canned and processed foods	12- 9-42
M-103	Amended	Dyestuffs	1- 1-43
M-104	Amended	Closures for glass containers	12-23-42
M-104	Amend. #1	Closures for glass containers	1- 1-43
M-108	Revoked	Can enamel	12-17-42
M-114	Amended	Goatskins, kidskins, and cabrettas	12-31-42
M-116	Revoked	Closure enamel	12-17-42
M-117	Amended	Cotton, Egyptian and American extra staple	1- 4-43
M-123	Amended	Asbestos textiles	12-14-42
M-126	Amended	Iron and steel conservation	12- 7-42
M-126	Amended	Iron and steel conservation	12-17-42
M-126	Amend. #1	Iron and steel conservation	12-17-42
M-126	Amended	Iron and steel conservation	12-26-42
M-127-b	Amended	Spices	1- 4-43
M-139	Amended	Phthalic alkyd resins	12- 7-42
M-141-b	Amended	Horsehide	12-24-42
M-145	Amended	Cocoa	12- 5-42
M-155	Amended	Cotton yarn for sales and producers own use	1- 4-43
M-158	Revoked	Drum exterior coating	12-17-42
M-162	Int. #1	Platinum	12-19-42
M-162	Int. #2	Platinum	1- 4-43
M-190	Amended	Calcium Carbide	12- 9-42
M-192	Revoked	Soluble dried blood and blood-adhesives	12-12-42
M-197	Revoked	Cotton, American extra staple	1- 4-43
M-231	Amend. #1	Chemical fertilizers	1- 1-43
M-242	Amended	Sulfamic acid and sulfamic acid derivatives	12-12-42
M-253	Amended	Lithium ore	12- 5-42
M-257	Amended	Sulphuric Acid	12- 5-42

(Continued on page 46)





[Official U. S. Navy photograph]

The S. S. Sea Eagle, another C-3 SA-2 cargo vessel of 100 percent welded construction, was recently launched at Pascagoula, Miss., shipyards of Ingalls Shipbuilding Corp. Sponsored by Mrs. Leigh Scott Border, wife of Captain Border, U. S. N., this vessel will be turned over for use of the armed forces.

S.S. Leonidas Polk Launching At New Orleans

The Maritime Commission announced that on January 7 the Delta Shipbuilding Company, Inc., New Orleans, La., will receive the Commission's distinguished "M" pennant, the Maritime flag, and labor merit badges will be awarded to the workers for meritorious performance in the production of Liberty ships.

On January 7 the Delta Shipbuilding Co., Inc., will launch a new Liberty ship, the LEONIDAS POLK at New Orleans, La. The ship is the first to be launched from this Gulf Coast yard in 1943, and is the 61st vessel to be added to the Victory Fleet as Delta's contribution to the war effort.

On the same day, Admiral Howard L. Vickery, Vice Chairman of the Maritime Commission and Deputy War Shipping Administrator, will present the Commission's "M" pennant to the yard and the labor merit badges to the workers. The "M" pennant is awarded by the Commission to shipyards producing

Liberty ships when the yard finishes a cycle whereby ships are completed on each of its ways within a period of 105 days or less.

Mrs. W. H. Gerhauser, wife of the president of the Delta Shipbuilding Company, will sponsor the LEONIDAS POLK at launching ceremonies to be held at the yards of the Louisiana Shipyards, Inc., New Orleans. The Delta Shipbuilding Company is a wholly owned subsidiary of the American Shipbuilding Company, Cleveland, Ohio.

Crude Oil Moves into 24-Inch Pipeline

The initial batch of crude oil is now moving into the 24-inch War Emergency Pipeline at Longview, Texas.

Line-filling operations started New Year's Eve despite washed-out river crossings, delay in deliveries of materials and other bad breaks that have hampered completion of the "big inch."

Actual delivery of the first batch of

oil at the Norris City, Ill., terminal must await repair and completion of the washed out Mississippi River crossing, but by pumping oil into the lower section of the pipeline while the break is being repaired much of the time lost through damage can be saved.

Pipeline officials of the Petroleum Administration for War said that the line-filling operation will proceed just as fast as block gates are installed ahead of the oil stream. Leading this stream of crude oil is a 75-mile charge of water which is being used to pressure-test the completed segments of the line.

PAW said that additional pumping and pipeline equipment can be installed on schedule despite the river-crossing delay and that initial deliveries of oil at Norris City may still be possible on or about February first.

According to present estimates the 24-inch pipeline will deliver about 90,000 barrels a day at the start. Throughput will be advanced progressively with the completion of additional pumping stations, and deliveries should hit about 150,000 barrels daily with three to four stations operating.

First Liberty Ship Launched In Florida

Florida joined the list of states launching Liberty ships when the J. A. Jones Construction Company, Inc., launched the E. KIRBY SMITH, the first Liberty ship to slide down the ways at Wainwright Yard, Panama City, Florida, on December 30, 1942.

Named after one of Florida's outstanding Confederate Cavalry officers, the new vessel was launched six months after her keel was laid at the new Panama City yard. The contract for the construction of the E. KIRBY SMITH and 32 other Liberty ships was let by the Maritime Commission last April. Work on facilities at the new site was begun immediately and six new ways have been completed.

Dr. R. E. Wilson to Receive Perkin Medal

The thirty-seventh impression of the Perkin Medal, awarded annually by the American Section of the Society of Chemical Industry for outstanding work in applied chemistry, will be presented to Dr. Robert E. Wilson, President of Pan American Petroleum and Transport Company, at a meeting in New York City on January 8. The medal will be awarded to Dr. Wilson in recognition of his research studies on such varied subjects as flow of fluids, oiliness, corrosion, motor fuel volatility, clay and glue plasticity, and humidity, and in recognition of his industrial contributions in the use of tetraethyl lead, petroleum hydrocarbon cracking, and adoption of chemical engineering principles by the oil industry. A dinner in honor of Dr. Wilson will be held at the Hotel Commodore preceding the meeting at 6:30 P. M.

The 1942 BLUE BOOK OF SOUTHERN PROGRESS

Now ready for distribution

The United States of America is the arsenal of the United Nations. It is also putting on the battlefields and on the seas the greatest force of armed and trained men ever placed under the American flag.

The South is achieving new records in the part it is taking in national production. It is also making new friends from all parts of the nation by hundreds of thousands who constitute the armed forces stationed at its posts and camps. These are the men who will have most to do with the country's future progress and it is well they are able to see at first hand something of this industrial empire which is moving forward with giant strides.

THE BLUE BOOK OF SOUTHERN PROGRESS reveals in facts and figures what the South has done and is doing. Figures presented of its resources and production show the basic facts that explain the South's industrial progress.

The South undoubtedly holds a greater promise for the future of young Americans than any other section of our country. It holds this greater promise because of its natural resources and the potentiality of their development into finished products.

It is interesting to note that among some of the country's important products the South produces the following proportions:

Bauxite	100%
Naval Stores	100%
Sulphur	99%
Carbon Black	95%
Cotton Lint	93%
Tobacco	90%
Cotton Yarn	85%
Rice	83%
Fertilizers	70%
Rayon and Allied Products	70%
Natural Gasoline	69%
Crude Petroleum	59%

These facts are of special significance at this time when every effort is being made to increase production of the things needed by our fighting forces.

The war has given all business a tremendous impetus, but we venture to believe that the utilization of the South's resources in the war effort is creating a foundation for a truly great development of the future.

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MANUFACTURERS RECORD
BALTIMORE, MARYLAND



HARVESTING RUSSIAN RUBBER

Kok-Saghyz, the dandelion from which the Russians derive most of their natural rubber, and which has been suggested for cultivation in the South, is being harvested in Bergen County, N. J., from seed planted experimentally last July 20. Here, Dr. John McGavack, rubber company scientist, supervises as the roots, still growing, are dug from the frozen ground long after the leaves have been frost killed. Most of the rubber content of Kok-Saghyz is in the roots. The plant is an annual which yields rubber in from six to 12 months. This Kok-Saghyz planting of the United States Rubber Company is one of a number sponsored by the government in many states to determine under what conditions the plant grows to best advantage.

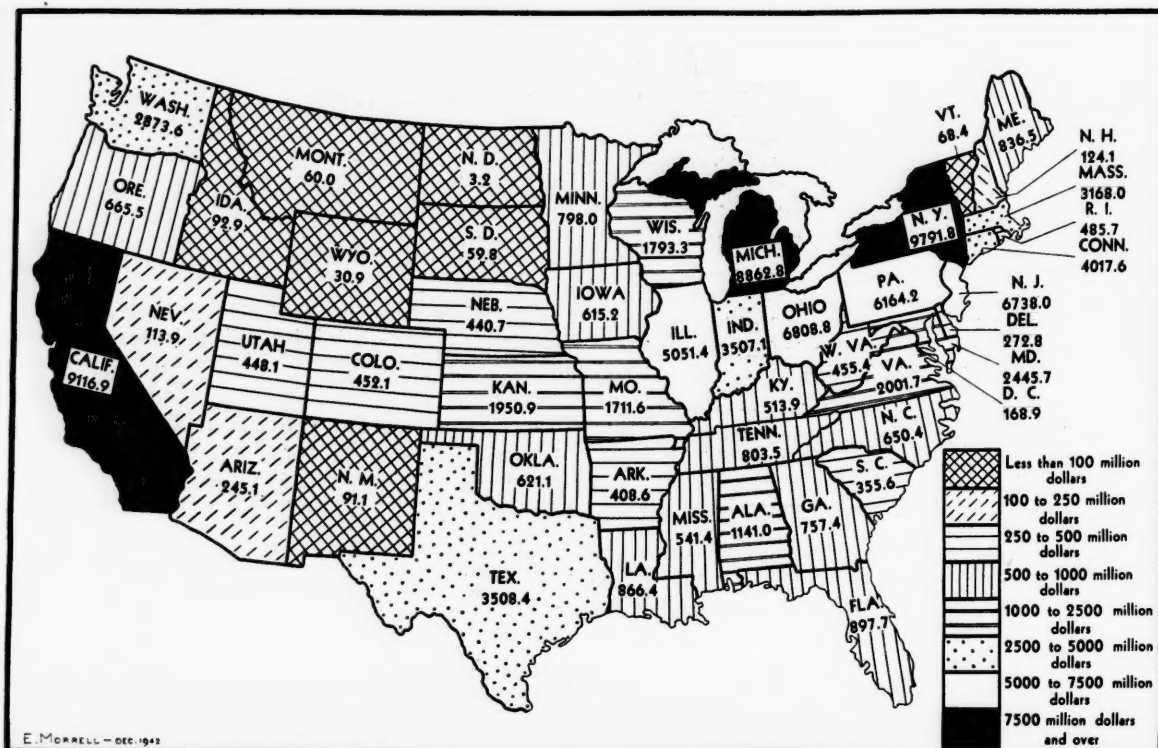
Galveston, Texas, Firm Gets Twelve-Tanker Contract

Contracts for the construction of 12 coastal tankers each have been awarded to Gray's Iron Works, Inc., Galveston, Texas, and the Marine Maintenance Corporation, Bayonne, N. J.

The awards were made in keeping with the Maritime Commission's program calling for the construction of 24 additional tankers. Both companies are now constructing this type vessel.

Due to circumstances beyond our control, the compilation of statistics concerning War Contracts and Allocations to Southern States for the period June, 1940, through October 1942, which would normally appear here, has been unavoidably delayed. Readers who particularly wish to have this information will be provided with a copy upon written application as soon as it is available. This feature of the Manufacturers Record will be continued. For the benefit of those who do not have a copy of the December Manufacturers Record we are reprinting below last month's statistical map.—Editor.

War contracts and allocations of all Federal agencies and British Empire purchasing missions through September was \$104,947,965,000. Of this, \$17,848,556,000 has gone to southern states. Totals for each state in millions of dollars are shown in the map below.





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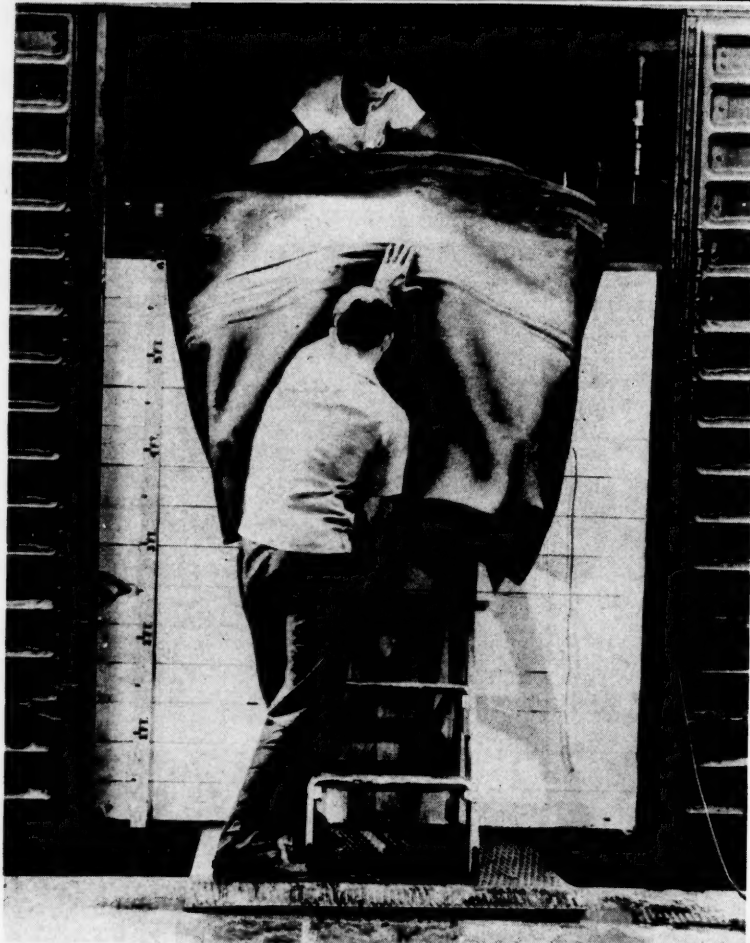
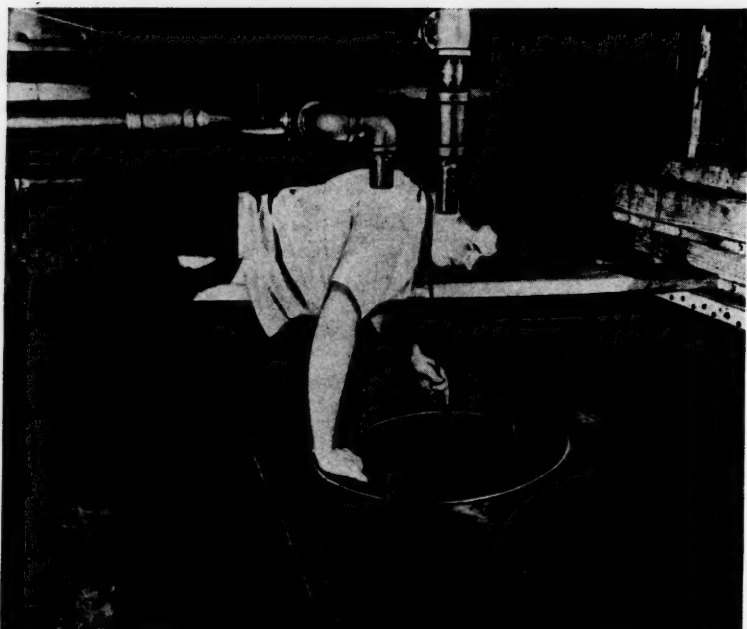


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To help solve the critical problem of oil transportation, a tank of synthetic material enables an ordinary freight car to haul crude oil. In the picture at top is one of these tanks, known as Mareng cells, installed in a special test car of the Pennsylvania Railroad. Note the pipe installation near the man's head through which the tank is filled. In the lower picture a Mareng cell, manufactured by the United States Rubber Co., under patents held by the Glenn L. Martin Co., is being pushed through the doorway of a freight car for installation.

1943 Hardwood Consumption Estimated At 5,670,000,000 Feet

Estimates of hardwood lumber consumption for 1943 totaling 5,670,000,000 ft. have been presented in a bulletin addressed to members of the Hardwood Lumber Manufacturers Industry Advisory Committee, hardwood manufacturers and distributors of hard wood lumber, by the Lumber and Lumber Products Division of WPB.

Requirements for 1943 are estimated as follows:

Boxing and crating, 2,880,000,000 feet.
Factory uses, 1,560,000,000 feet.

Civilian construction (including war housing) 800,000,000 feet.

Direct military purchases (including Army, Navy, Maritime Commission, and United Kingdom) 430,000,000 feet.

These estimates indicate a decrease from 1942 in all uses except boxing and crating, which is higher by 730,000,000 feet.

Members of the Hardwood Lumber Manufacturers Advisory Committee have advised the Lumber Division that hardwood production is at least 10 per cent below that of the same season last year and may be down 20 to 30 per cent in some regions, as a result of reduced log inventories.

Mill stocks of hardwood lumber are below normal. Scarce items are No. 2 and 3 common oak, thick birch and maple, and tupelo.

Women In Coal Mines

In the November issue of MANUFACTURERS RECORD we included an item concerning the employment of women as tippie workers of Algoma Coal and Coke Co. In this connection we quote in full an article from the *United Mine Workers Journal* of December 1, 1942.

Without further comment we wish to add that The Printing Pressmen's and Assistants' Union has not only authorized but furnished women press feeders for the plant that prints this and many other magazines. What will the "social standard of sons and daughters" be under Japanese or German conquest?

United Mine Workers Journal

December 1, 1942

NECESSITY FOR WOMEN IN COAL MINES DOES NOT EXIST

Two recent grandstand publicity plays involving the employment of women around coal mines were made last week. One was played from Western Canada, while the other came from Algoma, W. Va., where William Beury, general manager of the Algoma Coal Co., hired five women to work as tippie workers, on the alleged pretense of solving a manpower shortage.

Beury dreamed up the "manpower shortage" because investigation has revealed that, on the very day the five women were hired, eight men were refused jobs at the Algoma mine. (The payroll records of this company show that the five women were not all hired

(Continued on page 51)

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In Canada: The Philip Carey Co., Ltd.
Office and Factory: Lennoxville, P.Q.

New Priority Orders Recently Put in Effect

(Continued from page 39)

M-259	Amend. #1	Dairy products	12- 9-42
M-259	Amended	Dairy products	12- 9-42
M-260		Acrylic Monomer and Acrylic Resin	12-10-42
M-265	Amended	Garment leather	12-31-42
M-269		Ascorbic acid	12-15-42
M-270		Hexahydric alcohols	12-12-42
M-271	Amended	Dairy products	1- 4-43
M-272		Cotton yarns and fabrics imported	1- 4-43

"L" LIMITATION ORDERS

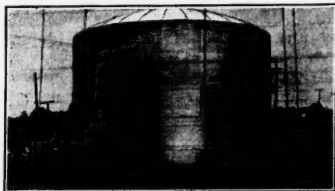
Order	Addition	Title	Effective Date
L-1-g	Amended	Motor trucks, trailers and passenger carriers	12-11-42
L-5-d		Domestic mechanical refrigerators	12- 5-42
L-7-c	Sched. II	Domestic ice refrigerators	1- 2-43
L-20	Amended	Cellophane and other materials derived from cellulose	1- 4-43
L-22-2		Furnaces	12-14-42
L-30-d	Amended	Kitchen, household and other miscellaneous articles	12-17-42
L-30-d	Amend. #1	Kitchen, household and other miscellaneous articles	12-17-42
L-31		Natural gas	12-26-42
L-31	Amended	Natural gas	1- 1-43
L-33	Amended	Portable electric lamps and shades	12-10-42
L-41	Amended	Construction	12- 5-42
L-41-b	Amended	Construction	12-21-42
L-41-c		Construction	12-22-42
L-42	Sched. VII Revoked	Plumbing and heating simplification	12-19-42
L-42	Sched. IX Revoked	Plumbing and heating simplification	12-19-42
L-42	Sched. XII Amended	Plumbing and heating simplification	12-30-42
L-46	Ext. 1 Amended	Electric power	12-31-42
L-56	Amended	Fuel oil	12-12-42
L-61	Amended	Tire retreading, recapping and repair equipment	12-17-42
L-61	Amended	Tire retreading, recapping and repair equipment	12-23-42
L-71-a		Dry cell batteries and portable lights operated thereby	12-14-42
L-73		Office supplies	12-26-42
L-79	Amended	Metal plumbing and heating equipment	12-16-42
L-79	Amend. #3	Metal plumbing and heating equipment	12-16-42
L-83	Int. #1	Industrial machinery	12-17-42
L-83	Amended	Industrial machinery	12-26-42
L-90	Amended	Corsets, combinations and brassieres	12-15-42
L-91	Amended	Laundry and dry cleaning equipment, tailors' pressing mch.	12-14-42
L-97	Amended	Railroad equipment	1- 1-43
L-98	Amended	Domestic sewing machines	1- 2-43
L-103	Sched. B Amended	Glass container and closure simplification	1- 4-43
L-103	Sched. D Amended	Glass container and closure simplification	1- 4-43
L-103	Sched. E	Glass container and closure simplification	12- 7-42
L-113	Revoked	Wood cased pencils	12- 7-42
L-123	Int. #2 (amend)	General industrial equipment	12-14-42
L-144	Amended	Laboratory equipment	12- 5-42
L-146	Revoked	Welding rods and electrodes	12- 8-42
L-148	Amended	Communications	12-18-42
L-150	Amend. #2	Plywood	12-14-42
L-150-a		Plywood	12-19-42
L-150-b		Plywood	12-22-42
L-157	Sched. #3 (Amend.)	Hand tools simplification	12-21-42
L-158	Amended	Material for replacement parts of automotive vehicles	12-12-42
L-158	Amended	Automotive vehicles, materials for production and repairs	12-31-42
L-161	Amended	Electric fuses	12-31-42
L-170	Int. #1	Farm machinery and equipment, attachments and repair parts	12-12-42
L-174		Manufactured gas	12-28-42
L-174	Amended	Manufactured gas	1- 1-43
L-177	Amended	Wall paper	12-23-42
L-178	Amend. #1	Film	12-19-42
L-178	Amended	Film	12-19-42
L-178	Amended	Film	12-31-42
L-180	Amended	Storage batteries for production and replacement for automotive vehicles	1- 5-43
L-183-a	Amended	Electronic equipment	12-16-42
L-185		Water heaters	12-19-42
L-199		Plumbing and heating tanks	12-19-42
L-201	Amended	Automotive tire chains and parts materials	12- 5-42
L-208	Int. #1, Amended	Gold mining	12- 8-42
L-215		Textile, fiber, clothing and leather machinery	12-26-42
L-219		Consumers' goods inventories	12-29-42
L-221		Electrical motors and generators	12- 8-42
L-221	Amended	Electrical motors and generators	12- 8-42
L-224	Amended	Clothing for men and boys	12-12-42
L-225		Electrical conduit, electrical metallic tubing and raceways	12-16-42

(Continued on page 52)



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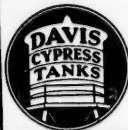
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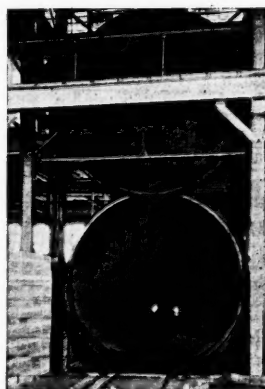
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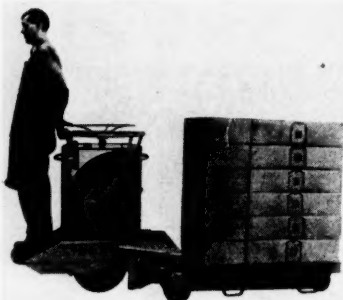
The new pullers add to a line that will take care of a wide range of jobs, covering factory work, tank, tractor, truck and farm machinery maintenance, etc., made in three sizes.

They are of the same construction as the rest of the line; the forged steel arms, forcing screw, etc., are heat-treated for strength.

Salsbury Lift Type Turret Truck

A fully automatic clutch and self-shifting transmission are but two of many features claimed for Salsbury Turret Trucks, new industrial power trucks available in lift, cargo and tractor types. Distinctive also is the engine-over-drive wheel power assembly contained within a removable turret. Steering is done with the driving wheel. Main frame of power plant is mounted rotatably in ball bearings which permits steering in any direction over a 360° arc.

The Salsbury Lift Type Turret Truck



is articulated to ride loads evenly over sharp dips, steep ramps and uneven travel surfaces. Loads are kept practically level, eliminating dangers of spilling. Power specifications are the same for all three types of trucks. Power plant is a single cylinder, 4-cycle, air-cooled engine. Self-shifting transmissions is entirely automatic and provides infinitely variable drive ratios between 60 to 1 in "low" and 20 to 1 in "high." Automatic clutch engages as engine is accelerated, disengages when engine idles.

New Heavy Duty Air Driven Mixers

Three new heavy duty air driven mixers, two of them gear reduction models and the other a larger direct drive model are announced by Mixing Equipment Co., Rochester, N. Y., as additions to their regular line.

The important features of these mixers especially adapt them to the mixing of paints, chemicals, high explosives and alcoholic compounds. The air driven motors used in these mixers cannot be overloaded or burned out. It is claimed that even when used in the heaviest liquids they will not stall. The air exhaust from the motor is so arranged that it keeps the motor running cool at all times. Models of 1 h.p. and ½ h.p. are available. They are equipped with gear reduction drive and adjustable shaft length.

New Methods and Equipment

H-P-M Forging Press

A new 1000-ton H-P-M FASTRAVERSE, self-contained, open forging press was recently demonstrated by the Hydraulic Press Manufacturing Company, Mount Gilead, Ohio.

The forging demonstration consisted of working down a hot steel billet, 15" x 15" x 84" long, between anvil blocks. This billet was forged into a spindle with a minimum diameter of approximately 11". Several small billets, 12" x 12" x 8½" long, were forged into discs approximately 18" in diameter and 4" thick. The forge crew and handling equipment was furnished by Joseph Dyson & Sons, Cleveland, Ohio.

The H-P-M FASTRAVERSE open forging press is a self-contained unit with motor driven hydraulic pumps mounted directly to the press cylinder and uses the FASTRAVERSE principle of press operation, which provides for prefilling and exhaust of the main cylinder during rapid traverse ram movement. Direct communication is afforded between the overhead oil tank and the main cylinder through the H-P-M FASTRAVERSE valve, built into the cylinder head. This FASTRAVERSE system assures complete prefilling of the press cylinder with oil, without cavitation. The speed of the working stroke, after die block contacts billet, is directly proportional to the output of the H-P-M HYDRO-POWER radial pumps and the area of the press ram. One of the unusual features of this H-P-M FASTRAVERSE forging press, is that its ram travel is reversed without the use of an operating valve. Instead, the delivery of the H-P-M HYDRO-POWER radial pump is reversed. Both the length and speed of ram travel are adjustable. Pressure builds up automatically as soon as resistance is met.

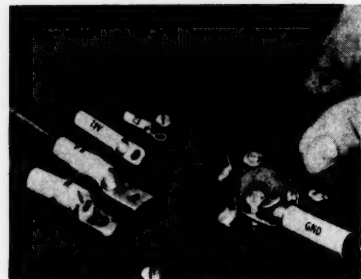
Revolving Dryer With No Heat In Outer Shell

A revolving semi-direct heat Dryer, which it is claimed will save fuel and heat is offered by the L. R. Christie Company, 17 East 42nd Street, New York City. Instead of placing the material in a central drum or cylinder with the application of the heat through chambers or flues on the outside of this cylinder, they have reversed this principle—the heat or gas being passed through a small drum or enclosed chamber which is rigidly suspended inside of and revolving with the large outer cylinder. The material to be dried is placed between the outer shell, except as dry gases for picking up evaporated moisture.

New Combination Insulator and Wire Marker

Short lengths of extruded plastic tubing are clearly marked with letters and numerals to perform two jobs. They serve as insulators of terminal connections and as wire markers. Where lug insulation and wire identification are required, they speed assembly by eliminating any additional means of identification.

The tubing from which these new combination insulator-markers are made has



very high dielectric strength. Smooth inside surfaces permit quick application over wires and lugs. Legible numerals are printed on the tubing with an ink that has resistance to chemicals, water and oils equal to that of the tubing itself. Available in colored tubing with either black or yellow symbols. In A.S.T.M. sizes from No. 9 up to ¾" I.D. Other tubing made from much less critical plastic materials can be printed and utilized solely as wire markers. Manufactured by the Irvington Varnish & Insulator Company, 6 Argyle Terrace, Irvington, N. J.

American Announces A New Line of Metal Washing Machines

A Metal Washing Division for designing and manufacturing washing machines for industrial purposes has recently been announced as an addition to the American Foundry Equipment Co., 555 S. Byrkit St., Mishawaka, Ind. The new Metal Washing Division will design and build machines for the removal of chips, dirt, grease and oil from machine parts, stampings and other manufactured products. Batch type machines are available as well as large continuous conveyor and mono-rail-spray types to incorporate such sequences of operations as wash and rinse; or wash, rinse and dry, or special processes for the surface treatment of metals. The machines will be suitable for solvent-emulsion degreasing or alkali cleaning. Drying will be accomplished with a high efficiency recirculating air system. Machines will be steam, gas or electrically heated and can be supplied complete with controls.

R. W. Allen Named Southeastern Manager for Wheelco Instruments

Roger W. Allen, district sales engineer for Foxboro Co. at Atlanta, Ga., for the past six years, has been named southeastern district manager for Wheelco Instruments Co., Chicago. He will make his headquarters at 305 Techwood Dr., Atlanta. A native of Atlanta, Allen attended Massachusetts Institute of Technology and holds an electrical engineering degree from Georgia Technological Institute. While with Foxboro, he specialized in pyrometric instruments. Earlier he was with Johns-Manville Sales Corp.

Industrial News

A. W. Davison Joins Fiberglas Laboratories As Scientific Director

Dr. Albert W. Davison, professor of chemical engineering and head of the industrial engineering curriculum at Rensselaer Polytechnic Institute, joins Owens-Corning Fiberglas Corporation as scientific director of its research laboratories at Newark, Ohio, effective January 1.

Under the direction of Games Slayter, vice president in charge of research, the Fiberglas laboratories employ some 400 engineers and technicians who, at the present time, are practically 100 per cent engaged in activities designed to fit glass fiber materials to the developing needs of the war program. Virtually the entire production of Fiberglas is now supplied under Army, Navy or Maritime Commission specifications.

J. H. Romann to Investigate Low Temperature Properties of Metals for War Department

John H. Romann, chief metallurgist of Tube Turns, Louisville, Ky., manufacturers of welding fittings and special forgings, was recently appointed chairman of a committee to conduct a special nation-wide investigation in industrial plants concerning the low temperature properties of metals. This research is being carried on for the War Department by the War Metallurgy Committee of the National Research Council, National Academy of Sciences, Washington, D. C.

According to Mr. Clyde Williams, head of the War Metallurgy Committee, Mr. Romann has been granted an indefinite leave of absence from Tube Turns in order to direct this work. The War Metallurgy Committee supervises research for several branches of the government, including the War Department. It reports to the Office of Scientific Research and Development, an independent agency created by the President of the United States.

Scully Steel Products Renamed U. S. Steel Supply Co.

The name of Scully Steel Products Company, U. S. Steel Corporation subsidiary, is changed to U. S. Steel Supply Company, effective January 1, 1943. E. E. Aldous, President, announced that the new name will not involve any change in the management or the business in which Scully Steel Products Company has been engaged. The principal reason for the change is to identify the Supply Company more closely with other subsidiaries of U. S. Steel Corporation. General headquarters of U. S. Steel Supply Company are located at Chicago. Warehouses are operated at the following locations: Baltimore, Boston, Chicago, Cleveland, Newark, Pittsburgh, St. Louis, and St. Paul. These warehouses under normal conditions are suppliers of a widely diversified line of rolled steel products and related items.

Rust Engineering Co. Building New Plant for National Carbide Co.

A complete industrial plant, comprising administration, service, and manufacturing buildings, is being constructed for National Carbide Co., by The Rust Engineering Co., Pittsburgh, Pa. Located in a Mid-West state, the plant is being built largely of concrete to conserve critical materials. Contract for design and construction amounts to less than \$1,500,000.

Crocker-Wheeler Electric Purchases Joshua Hendy Iron Works

Purchase of the Joshua Hendy Iron Works by the Crocker-Wheeler Electric Manufacturing Company has just been announced by Charles E. Moore, president of the Joshua Hendy Iron Works. The combination of these two companies is unprecedented as a major expediency in furthering the war effort for it will contribute more than the sum of the parts, each of which has been independently contributing to the over all war effort.

Every Lunkenheimer valve is regularly tested on both sides at low and high pressure for seat tightness, and then given a shell test. The slightest leak causes rejection. Test pressures far exceed rated pressures.

But

The Final Test of a Valve . . . is Performance

How does it hold up in service? Does it stand the gaff of hard usage? Is it dependable? Is it economical to use? How does it stack up in *lasting* qualities? The answers to these questions are the final and only convincing test of a valve. Ask any production man.

Now, when performance is more important than ever, when unnecessary time out for repairs is waste, and when new valves aren't so easy to replace, valve users are profiting from their foresight in buying Lunkenheimer.

Rigid testing procedure is but one of the many precise steps in manufacture by which Lunkenheimer has maintained valve quality through the years. These steps are your assurance that once installed, Lunkenheimer Valves will give you more in uninterrupted performance for today's non-stop production schedules.

Since virtually all materials used in the manufacture of valves are on the list of critical materials, valve users are urged to furnish the highest possible preference ratings and proper "end use" information on their orders. This will be of mutual helpfulness.

THE LUNKENHEIMER CO.

"QUALITY"

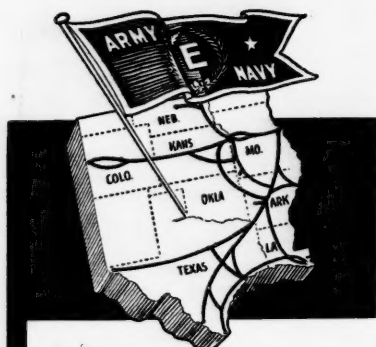
CINCINNATI, OHIO, U.S.A.

NEW YORK CHICAGO
BOSTON PHILADELPHIA

EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

LUNKENHEIMER VALVES

28-105C-62



for Outstanding WAR PRODUCTION

E-flags already are flying over many plants on Missouri Pacific rails. The will to work and win, backed by abundant raw materials, fuel, power, skilled labor and dependable transportation has transformed the Central West and Southwest, served by Missouri Pacific Lines, into an arsenal for America.

There's ample space and opportunity here for immediate and future plant expansions, and Missouri Pacific's Industrial Engineers and Technologists will be glad to furnish comprehensive surveys of available industrial sites. For prompt attention, write or wire

J. G. CARLISLE
Director,
Industrial Development
1710 Missouri Pacific Bldg.
ST. LOUIS, MO.

MISSOURI
PACIFIC
LINES

Trade Literature

WHEELS, CASTERS, AND CONVEYORS—

Folder—"Keep America Rolling" presents pictorially "Metzgar" line of wheels and casters.

The Metzgar Company, Grand Rapids, Mich.

TRUCKS, TRACTORS, AND TRAILERS—

Catalog—Describes with diagrams and advantages and application of various types of power handling equipment, including platform industrial lift trucks, fork trucks, tractors, and trailers. Also includes complete specifications for each piece of equipment and an explanation of the procedure for ordering under Limitation Order L-112.

The Mercury Manufacturing Co., 4044 South Halsted Street, Chicago, Ill.

NATIONAL EMERGENCY STEELS—

Booklet—Containing simplified data dealing with selection and heat treating of NE Steels. The Jominy End Quench Hardenability Test is explained step by step and a cut-away diagram shows test in action. Because this test is the simplest and quickest way of determining hardenability. The Technical Committee of the A.I.S.I. adopted it as the standard for testing NE steels. The booklet includes four tables for converting Jominy Test results into tensile strength, yield point, elongation, reduction

of area, etc. One table indicates the cooling rate at various distances from the quenched end of a Jominy Test sample. Another table gives the cooling rates at center, half radius and surface for 1", 2", and 3" round bars quenched in oil and water. A third table shows the approximate relationship of physical properties to hardenability. The last table gives the approximate relationship between drawing temperatures and tensile strength. The various NE Steels are listed as suggested alternates for standard compositions in the Carburizing, Medium Hardening and High Hardening groups. The booklet also shows average physical properties after heat treating together with forging, normalizing, annealing and quenching temperature for thirty of the most widely used NE Steels. Available stock sizes in the various NE analyses both hot and cold rolled are also given.

Joseph T. Ryerson & Son, Inc., Chicago, Ill.

WATER PRODUCTION SYSTEMS—

Booklet—describes and discusses the Ranney System of water production for industrial and municipal use; complete with diagrams, installation pictures and performance chart.

Ranney Water Collector Corp., of New York, Louisville, Ky.

FLUORESCENT LIGHTING EQUIPMENT—

Catalog Sheets—L-75 describes and illustrates seven new industrial lighting units for utilization with fluorescent lamps. Masonite reflectors, non-metallic shielding eggcrates, "forlamp" units, mechanic's portable and quick starting units are included.

The Edwin F. Guth Co., St. Louis, Mo.

INDUSTRIAL LUBRICATION EQUIPMENT—

Catalog—"Alemite" is a quick selection guide for determining the lubricating equipment best adapted to any lubrication requirements. The equipment is charted in accordance with the kind of lubricants pumped (fibrous, heavy or light bodied) container capacity, operating power (air or electric) and pressure (high or low). Stationary and portable power guns, lubricant loaders and transfer pumps, and all types of manually operating greasing equipment are also described.

Leaflet—describes the new portable Alemite "Lubrikart" as designed to reduce maintenance time, bringing a complete power lubrication department to any machine in the plant. These units, compactly designed and mounted on hand trucks, may be easily moved throughout industrial plants.

Alemite Div., Stewart-Warner Corp., 1826 Diversey Parkway, Chicago, Ill.

FABRICATION—

Brochure—describes and illustrates plant layout, departments, machinery and equipment, together with the products normally made, which can now be utilized for the production of war materials.

The Bastian-Blessing Co., 4201 Peterson Ave., Chicago, Ill.

STEEL—

Brochure—"100 Years of Peace and War" celebrates the 100th birthday of Joseph T. Ryerson & Son, Inc. Historians will find it interesting, but from the standpoint of reviewing the nation's industrial growth during the past century it may be enjoyed by everyone. Ben Stahl, illustrator for Saturday Evening Post, handled the principal drawings which dramatize the events in the history of Ryerson and the nation. The pen and ink sketches were drawn by Joseph Feher.

The story unfolds with reference to the early pioneer Ryerson Family that first built and operated iron forges in New Jersey at the time of the Revolutionary War. From there, it develops step by step through the growth of the nation's industries—high pointing events which have influenced civilization in relation to steel.

Joseph T. Ryerson & Son, Inc., Chicago, Ill.

INDUSTRIAL THERMOMETERS—

Bulletins—G23-2 discusses the operating

TENTS TARPAULINS WINDBREAKS ROAD MATS

CONTRACTORS' SUPPLY DEALERS in every state sell the Fulton line. Specify SHUREDRY and FULTEX Tents, Tarpaulins, and Windbreaks—anything made of canvas. Also Fulco Road Mats and Burlap. If your dealer cannot supply you, ask our nearest plant for catalog

write for Prices

Fulton Bag & Cotton Mills

Manufacturers since 1870

Atlanta St. Louis Dallas Minneapolis

New York New Orleans Kansas City, Kan.

principle of Wheelco thermometers, and gives information for selecting the proper instrument. A table gives complete details on characteristics, performance and limitations of each class of vapor-pressure and gas filled instruments. Similar information to aid in selection of bulb and socket materials, and of capillary and its armor, is also included.

Bulletin—G503-2 covers the company's recording control thermometer, while G603-2 is on the Wheelco indicating control thermometer. Both bulletins discuss the company's "electronic principle" of effecting control without mechanical contact between measuring and control sections of the instruments.

Bulletin—G303-2 describes and gives applications for the company's indicating thermometer, while Bulletin G403-2 covers its recording thermometer.

William R. Harshe Co., 540 N. Michigan Ave., Chicago, Ill.

THE HERCULES MIXER—

"The Hercules Mixer" for November, 1942, was more than an ordinary issue of a house organ for it presents in graphic form the story of what this company and its several plants, many of them located in the South, are contributing to the war effort. To list the products in the fields of cellulose, explosives, naval stores and chemicals would occupy more space than is available here, while the continuing research is a story unto itself which must wait till after the war before it is fully told.

Hercules Powder Company, Wilmington, Del.

LOUISIANA INDUSTRIAL DIRECTORY

The Louisiana Department of Commerce and Industry has just published the first complete directory of the state's manufacturing industries.

Manufacturers are listed alphabetically both by name and by parish (county). Also includes valuable statistical facts on every parish.

Copies may be obtained at \$1.00 each, postpaid, from

Dept. of Commerce & Industry, State of Louisiana.
State Capitol, Baton Rouge

GALVANIZING

Have it done by Philadelphia's OLDEST, the Country's LARGEST

—HOT DIP JOB GALVANIZER—

Joseph P. Cattie & Bros., Inc.

Geul & Letterly Sts., Philadelphia, Pa.

GALVANIZED PRODUCTS FURNISHED

Crane Does Two-Day Job In One Hour

A crane which did a two-day load-handling job in one hour with a smaller crew is the actual experience recently reported by a Southern metal products plant after installing a three-ton overhead traveling crane. An official of the company said that now three men handle as much loading and unloading in one hour as four men formerly did with other methods in two days.

The crane, a P&H Trav-Lift 3-motor, double-I-beam type, is cage operated and equipped with variable speed control. It has a span of 47 ft.-in., a lift of 18 ft., and travels the full length of the plant's receiving and shipping bay.

Cranes of this type are contributing a great deal toward speeding production of war materials. The results of the installation discussed here are typical in the savings of time and man power they make possible. The Harnischfeger Corporation, Milwaukee, long-time manufacturers of overhead materials handling equipment, is now producing these cranes in the biggest quantity of all its history. With capacities up to 15 tons, Trav-Lifts are suitable for smaller manufacturing plants and in various sections of larger plants requiring either constant or intermittent crane service for lifting, lowering and moving loads within 15 tons over definite areas. They provide all the advantages of overhead materials handling—combined with the obvious economy over larger cranes with unnecessary high capacities.

Women in Coal Mines

(Continued from page 44)

on the same day—Editor.)

In both cases, the women were discharged and replaced by men as soon as U.M.W.A. representatives learned of the situations, but not before the gullible Department of the Interior had received the news and had issued a release which caused press services to pick up the Algoma story and put out considerable publicity for the mine management.

In notifying the Algoma mine owner that he must immediately stop the practice of hiring women, George J. Titler, president of District 29, summed up the matter in these words: "It is regrettable that coal operators will attempt to reduce the social standard of wives and daughters of our membership to a level with those practiced in the 'Dark Ages,' that of slaving in the production of coal, which was abolished in England in the eighteenth century."

In the first place, the employment of women in and around mines is not practical, as years of experience have shown. Coal mining is not a woman's job and that's all there is to it. For that reason, U.M.W.A. contracts specifically cover men, not women.

In the second place, there is no necessity of bringing in women to solve a

manpower shortage because there are hundreds of older men, experienced miners now out of work, who need the jobs and who can perform them much more capably than can women.

Every miner knows this and so does every operator. When operators hire women, they are not doing it because they can't get men. They are doing it as a publicity seeking move. It never lasts; is never successful. But operators have been trying it for a long time and it seems they are still at it.

Government press agents should know better than give wings to a story that is bound to promote discord among working forces.

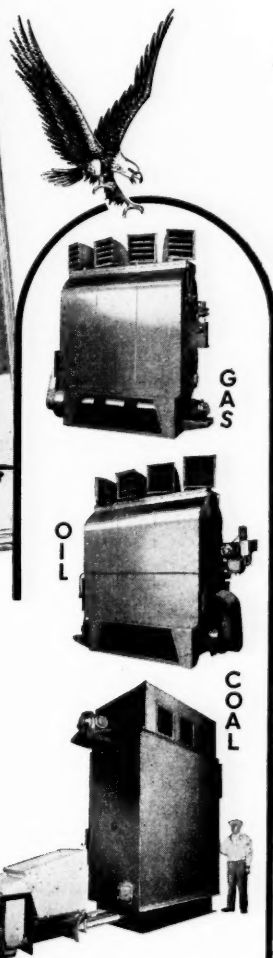
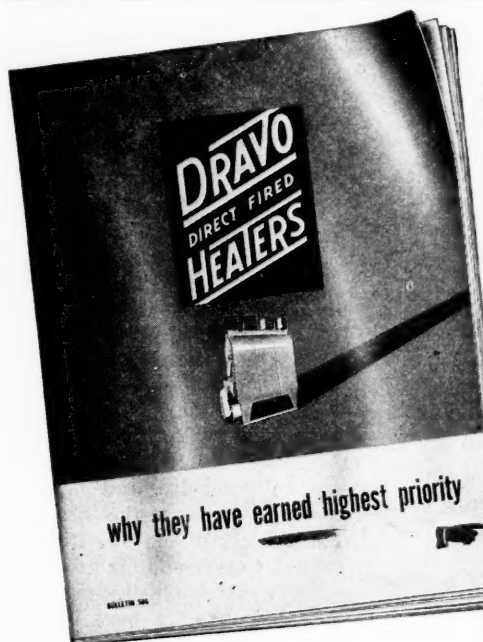
Southern Construction Contracts Break All Records in 1942

(Continued from page 33)

for local communities by the Federal government. "Other people, equally impressed by the necessity of doing this job on a large scale, believe that it can be done and done more soundly through local initiative and private investment."

The banker's outlook, presented by John A. Reilly, president of the Second National Bank, Washington, D. C., is that the first step in attempting to plan for post war opportunities must be psycho-

(Continued on page 54)



NINE QUICK FACTS FROM THIS NEW BOOKLET

1. By eliminating the need for a boiler plant, these heaters save critical materials, man-hours and money.
2. Dravo Direct Fired Heaters give instant heat when the starter button is pushed.
3. Maximum heat utilization is secured from fuel. All heat except stack loss is utilized.
4. The most economical fuel available for automatic firing, natural gas, light or heavy fuel oil, or coal, is used.
5. Lower maintenance cost due to simplification, such as eliminating freeze-ups, broken traps, leaking valves, etc. No moisture from steam leaks to rust material stored in heated areas.
6. Saving in labor costs; can be operated by maintenance man.
7. The system can be used to furnish summer air circulation. Arrangements can easily be made to provide outside fresh air. Filters can be installed on air intakes.
8. Heat is delivered over an entire floor area or to a localized section with minimum temperature differential between floor and ceiling.
9. These heaters can be installed during building construction for temporary heat. Very little labor is required for their installation.

Bulletin No. 506 contains a complete description of design and construction of Dravo Direct Fired Heaters for gas, oil or coal; also tabular comparisons showing metal and fuel savings which contribute to the war effort. Send for your copy.

DRAVO CORPORATION

Heater Department

DRAVO BLDG., PITTSBURGH, PA.

Sales Offices in Principal Cities

New Priority Orders Recently Put in Effect

(Continued from page 46)

L-226	.....	Printing and publishing machinery, parts and supplies	1- 4-43
L-227	.....	Fountain pens, mechanical and wood cased pencils, pen nibs and holders	12- 7-42
L-228	..... Int. #1	Asphalt and tarred roofing products and asphalt shingles	12-29-42
L-229	.....	Railroad equipment	12-11-42
L-230	..... Amended	Military arms	1- 1-43
L-233	.....	Photographic film and film base	12-15-42
L-234	.....	Industrial type instruments	12-24-42
L-235	.....	Airport lighting equipment	12-26-42
L-236	.....	Hardware simplification	12- 9-42
L-236	..... Sched. I	Hardware simplification	12- 9-42
L-240	.....	Printing and publishing	12-31-42
L-244	.....	Printing and publishing	12-31-42

"P" PREFERENCE RATING ORDERS

Order	Addition	Title	Effective Date
P-46-b	..... Amended	Utilities, maintenance, repair and supplies	12-16-42
P-84	..... Amended	Plumbing and heating emergency repairs	12-16-42
P-84	..... Amend. #2	Plumbing and heating emergency repairs	12-16-42
P-98-b	.....	Petroleum production, transportation, refining and marketing	12-31-42
P-98-c	..... Amend. #1	Petroleum production, transportation, refining and marketing	12-31-42
P-130	.....	Communications	12- 9-42
P-134	..... Amended	Metal mills, materials for repair, maintenance and operation	12-31-42
P-138	.....	Loggers' and Producers' maintenance repair and operating supplies	12-24-42

"E" EQUIPMENT ORDERS

Order	Addition	Title	Effective Date
E-1-b	..... Amended	Production and delivery of machine tools	12-19-42
E-1-b	..... Amended	Machine tools, production and delivery	12-29-42
E-2-b	..... Amended	Tools, cutting	12-14-42

George Washington Carver

(Continued from page 30)

"stones" he found in the sand of the farm, had in fact discovered the source of the great Golconda diamonds.

Reduced to its simplest form, Dr. Carver's philosophy was—"Start where you are, with what you have, make something of it, never be satisfied."

When Dr. Carver was called to Tuskegee Normal and Industrial Institute by Booker T. Washington to teach science to Negro boys, he took it for granted he would find a well equipped laboratory, but he found not a single piece of equipment.

Consistent with his philosophy, confident of his abilities, inspired by his mission, he went ahead. He sent his would-be students into the back alleys of the town of Tuskegee to collect scrap material of any kind; little bits of broken glass, dishes, pieces of rubber, bits of wire. From these he equipped his laboratory. Results soon became evident and the school authorities stopped his teaching to devote all his time to research and experimentation.

When the Southern Exposition

was held at the Grand Central Palace in New York in 1925, the laboratory exhibits of Dr. Carver were so extensive and of such value to industry, the State of Alabama asked the Institute to have Dr. Carver and his exhibit of products occupy a liberal section of the State's space. There he was, humble, self-effacing, moving among the great and near great with an innate dignity, giving all honors and thanks to God and none for himself; grateful to all people for the opportunities this great land had given him and willing to give all his talents to the good of all people with no thought of personal reward.

Dr. Carver is a classic example of a product of the American Way of Life. The South appreciates the gifts of chemical knowledge he has left, and the nation is richer for his having lived among us.

The United States Transformed

(Continued from page 23)

responding increase in the program will be possible.

For example, if the change in the military situation requires more aircraft of the heavy bomber type,

there must be a quantitative reduction in other types of aircraft in order to keep the over-all aviation program within its available supply of raw materials. Simply put, additions to one part of the program mean subtractions from others.

Electric Light and Power Industry in 1942

(Continued from page 25)

utilities have doubled, whereas revenues have increased by only a third. Taxes now consume 24 per cent of every dollar collected from the user of electricity.

Contractors and Subcontractors Wanted

(Continued from page 38)

grinder, thread grinder, heavy duty drill press milling machine, balancing equipment. Heat treating required. Dimensions O.A. Lengths 37" and 48", main bearings 2½" and 2¾" crank throw 2½" and 2¾". All forgings furnished.

Ref. Buescher-1-1

A Penna. manufacturer requires additional facilities for machining the TOP CAP AND ADJUSTING CAP for 60,000# universal testing machine. Equipment required:—Horizontal Boring Machine 2" or 3" bar; Planer 24" wide; Drill Press; Slotter; Milling Machine #4. Tolerance:—plus or minus .002. Experience required: Deep Boring. Bore Diameter 1¼", Length 33¾". Overall Dimensions:—41¾" long x 9" wide x 7¾" high. Material:—Cast Steel. Castings will be furnished.

TO meet demands on physical and mental strength business men carrying unprecedented burdens must keep robust, refreshed, clear eyed, keen and alert. Good health is the nation's greatest asset. The **HIGHLAND PINES INN** offers unsurpassed hospitality in a charming Southern atmosphere among congenial people; giving mental stimulation and physical refreshment outdoors from the bracing, pine-laden air and warm sunshine. Rain or showers seldom interfere with continuous outdoor life as the sandy soil promptly absorbs all moisture and the pine trees drink in whatever may remain in the air.

Southern Pines is only 9 hours from Washington; 13 hours from New York; 20 hours from Boston and only halfway between New York and Florida on the main line of the S. A. L. Ry. with through Pullman service. On U. S. Highway number one—For rates and reservations write or wire.

W. E. Flynn, Manager.

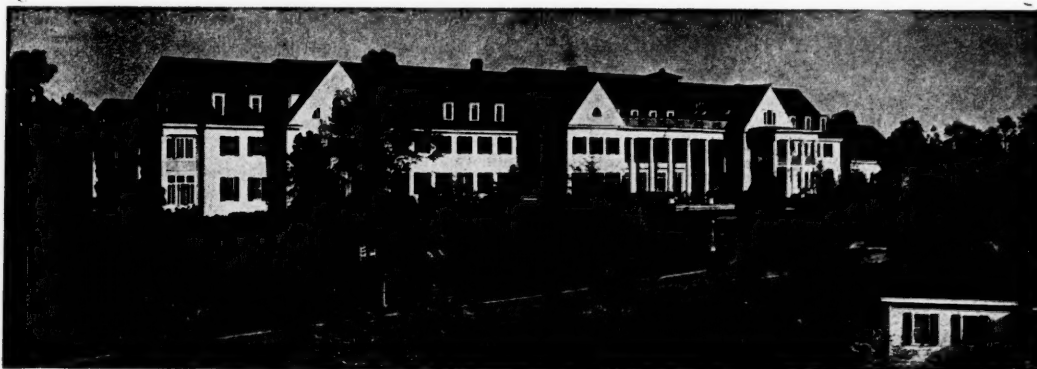
An Ideal WINTER RESORT

NOVEMBER TO MAY

HIGHLAND PINES INN

SOUTHERN PINES, N. C.

Golf—Polo—Riding—Tennis—Racing—Hunting
Canoeing—Motoring



We have helped

many businesses that have brought
us their financial problems.

Correspondence invited.

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, President

BALTIMORE, MARYLAND

Member Federal Reserve System
Member Federal Deposit Insurance Corporation

*Modernized...
Beautified...*



*Buffalo's
Most Congenial
Hotel*

● Today, you'll enjoy your stay at Hotel Lafayette more than ever! Extensively remodeled, and redecorated, this fine hotel offers new convenience and comfort—but the friendly hospitality is the same as ever. Excellent food, home-like rooms, reasonable prices. And remember: Hotel Lafayette is Buffalo's most centrally located hotel. Moderate rates: Single \$2.75 up; Double, \$4.50 up; special rates for 4 or more. Write for Folder P-20.

Hotel **LAFAYETTE**
K. A. KELLY, MANAGER BUFFALO, N. Y.



While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower. Centrally located.

The Southern Hotel
BALTIMORE

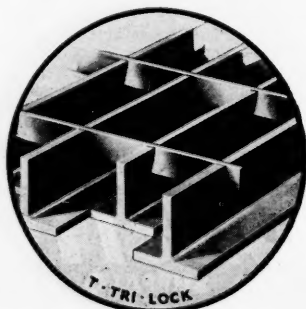
JANUARY NINETEEN FORTY-THREE



Specify
TRI-LOK
OPEN STEEL FLOORING
CONCRETE ARMORING
SAFETY STEPS
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Southern Construction Contracts Break All Records in 1942

(Continued from page 51)

logical preparation. Overwhelming fear of the future, regardless of who wins the war, is influencing the morale of the American people. "There is no real justification for this despair if the future is calmly examined," he says, at the same time suggesting that the construction industry can perform a real service if it can aid in dispelling "the prevailing mental defeatism."

Theodore Irving Coe, technical secretary of the American Institute of Architects, looks back over the events since the Pearl Harbor attack, and points with pride to the accomplishments of the construction industry since that time. "Of

all of our major industries," he asserts, "the construction industry required no preparation or conversion to take its place in the front line of the battle effort."

"The extent of our war requirements demanded the unprecedented expansion of our already tremendous industrial capacity and called for construction of a staggering volume to permit the expansion of production; the development of naval and military bases, both here and overseas; the housing of our rapidly expanded armed services and the industrial workers in new and enlarged plants."

"The construction industry, as a whole, has been awarded no 'E' pennants, but it has played its part in winning many of these pennants for others and has the satisfaction which can come only from the realization of a hard job well and faithfully performed."

Industrial

(Including Private Utilities)
December, 1942

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded Twelve Months 1942
Alabama	\$3,185,000	\$200,000	\$38,909,000
Arkansas	103,000	20,000	11,323,000
Dist. of Col.	.....	.....	1,531,000
Florida	273,000	35,000	14,037,000
Georgia	75,000	50,000	33,382,000
Kentucky	2,850,000	120,000	47,010,000
Louisiana	1,385,000	430,000	134,842,000
Maryland	525,000	115,000	48,571,000
Mississippi	60,000	80,000	41,364,000
Missouri	261,000	1,810,000	106,524,000
N. Carolina	155,000	285,000	10,712,000
Oklahoma	56,000	510,000	31,479,000
S. Carolina	152,000	.....	4,603,000
Tennessee	1,135,000	35,100,000	102,449,000
Texas	2,677,000	235,000	437,823,000
Virginia	90,000	.....	7,403,000
W. Virginia	700,000	3,150,000	15,732,000
TOTAL	\$13,742,000	\$42,140,000	\$1,086,304,000

Public Engineering

(Dams, Drainage, Sewers, Waterworks, etc.)
December, 1942

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded Twelve Months 1942
Alabama	\$670,000	\$50,000	\$14,128,000
Arkansas	1,800,000	417,000	19,705,000
Dist. of Col.	62,000	50,000	1,259,000
Florida	4,860,000	970,000	85,032,000
Georgia	1,805,000	320,000	19,881,000
Kentucky	.....	.....	6,688,000
Louisiana	1,675,000	901,000	30,379,000
Maryland	347,000	440,000	8,222,000
Mississippi	235,000	315,000	27,067,000
Missouri	388,000	468,000	9,206,000
N. Carolina	200,000	.....	11,776,000
Oklahoma	550,000	510,000	7,910,000
S. Carolina	290,000	.....	13,214,000
Tennessee	250,000	500,000	53,440,000
Texas	5,908,000	4,764,000	110,752,000
Virginia	808,000	85,000	17,872,000
W. Virginia	.....	.....	10,503,000
TOTAL	\$19,748,000	\$9,725,000	\$447,014,000

Public Building

(City, County, Federal; Housing; Schools)
December, 1942

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded Twelve Months 1942
Alabama	\$3,856,000	\$911,000	\$117,254,000
Arkansas	6,157,000	1,348,000	70,356,000
Dist. of Col.	1,447,000	291,000	46,810,000
Florida	9,407,000	4,637,000	182,580,000
Georgia	4,287,000	4,640,000	123,439,000
Kentucky	1,050,000	25,000	52,115,000
Louisiana	7,882,000	755,000	101,976,000
Maryland	3,971,000	882,000	125,697,000
Mississippi	2,498,000	1,085,000	121,834,000
Missouri	820,000	1,263,000	59,012,000
N. Carolina	4,450,000	1,620,000	150,805,000
Oklahoma	200,000	1,110,000	163,402,000
S. Carolina	1,047,000	110,000	71,570,000
Tennessee	2,108,000	14,775,000	125,512,000
Texas	10,582,000	16,355,000	343,583,000
Virginia	2,678,000	2,524,000	193,374,000
W. Virginia	210,000	15,000	5,483,000
TOTAL	\$62,650,000	\$52,358,000	\$2,054,782,000

Roads, Streets, Bridges

December, 1942

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded Twelve Months 1942
Alabama	.....	.....	\$11,440,000
Arkansas	\$287,000	\$50,000	1,353,000
Dist. of Col.	81,000	25,000	9,302,000
Florida	1,638,000	50,000	15,894,000
Georgia	1,236,000	405,000	16,080,000
Kentucky	.....	.....	5,320,000
Louisiana	1,667,000	175,000	7,348,000
Maryland	624,000	355,000	18,354,000
Mississippi	105,000	50,000	4,272,000
Missouri	280,000	.....	6,298,000
N. Carolina	500,000	.....	6,330,000
Oklahoma	1,472,000	900,000	6,640,000
S. Carolina	.....	.....	8,043,000
Tennessee	517,000	3,200,000	2,147,000
Texas	1,983,000	950,000	27,199,000
Virginia	254,000	200,000	17,954,000
W. Virginia	150,000	.....	6,489,000
TOTAL	\$10,774,000	\$6,360,000	\$170,472,000

Technical Aide to Freeport Sulphur Manager is Named

C. O. Lee, member of the Freeport Sulphur Company organization for 16 years, has been appointed technical assistant to the general manager, it was announced by Langbourne M. Williams, Jr., president. Coming to Freeport in 1926 as field engineer in the Hoskins Mound production department, Lee was made field superintendent at Hoskins in 1929. After a period as technical assistant to the general super-

intendent of Hoskins and the old Bryan-mound mine, he was sent to Louisiana to take charge of initial prospect drilling for sulphur at Grand Ecaille. The results of this drilling led to construction of the company's Grand Ecaille mining plant, of which Lee was general superintendent from 1935 to 1940. For the past two years he has been active in research on a nickel recovery process and in the operation of a pilot plant at Hoskins, and also assisting in the design of a \$20,000,000 nickel recovery plant being built in Cuba by a Freeport subsidiary.

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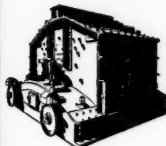
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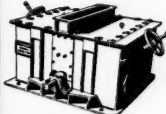
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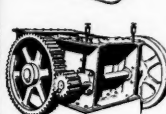
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Mineral Production in 1942 Breaks All Records

(Continued from page 21)

reason, there was an increase in sand and gravel products of about 7 percent, and stone production of about 9 percent, because these materials are used extensively as aggregates in concrete construction. On the other hand, lime sales decreased approximately 11 percent, and gypsum sales about 6 percent due chiefly to the shrinkage in civilian building construction.

There was a large increase in demands for molding sand and for limestone used as flux in blast furnaces. An advance of approximately 11 percent in sales of clay was due largely to the great increase in fire clay sales to the refractory industries. A 10 percent increase in salt production was due to larger demands for chemical uses, notably in the manufacture of metallic magnesium. An extension in the fertilizer industry led to an increase of about 6 percent in

the sales of phosphate rock.

All-time high records of production were registered in 1942 for several important nonmetallic mineral commodities. The cement output exceeded in quantity the previous high of 1926. Other widely used commodities that reached all-time high sales records in 1942 were sand and gravel, stone, crude barite, phosphate rock, and high-grade clays. Because of the exceptionally high demands of steel furnaces, fire clay and fluorspar sales far outstripped all previous records. Sales of potash salts reached an all-time high in 1942, and for the first time exceeded domestic demands. Because of the unusually large production of explosives and fertilizers, sulfur production also attained a new high record in 1942.

Increases in sales of many non-metallic minerals are to be attributed to the striking trend at this time to substitute nonmetallic products for metals in order to conserve the latter for direct military use.

Prefabricated Barracks Assembled in 90 Minutes

(Continued from page 31)

week in addition to hundreds of truck deliveries. Typical of most war plants, National Housing Company runs on a three shift basis—a full twenty-four hours a day of determined American effort to quickly defeat our enemies.

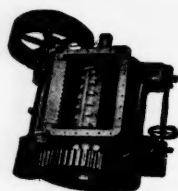
Paper and Paperboard Production in the South

	1941	1940 ^a
Florida	480,296	392,003
Louisiana	809,287	753,752
Maryland	169,863	161,709
North Carolina	225,997	154,232
Texas	132,295	71,037
Virginia	708,412	577,625
West Virginia	59,538	51,825
Other Southern		
States ^b	1,336,665	1,035,068

Total South 3,922,353 3,197,251

^aSource: Department of Commerce, Bureau of the Census—Census of Forest Products: 1940.

^bIncludes Alabama, Arkansas, Georgia, Mississippi, and South Carolina, which cannot be shown separately without disclosing figures for individual establishments. Figures for Missouri, Tennessee and the District of Columbia, where paper and paperboard also is produced, are not available and are not included in the total for the South.



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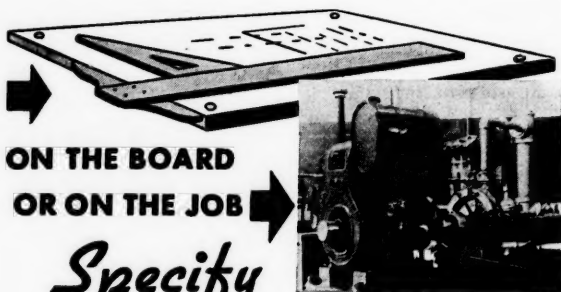
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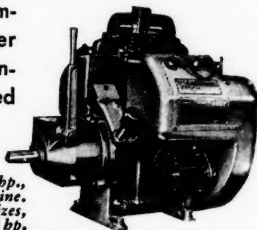
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New Industrial Plants and Expansions in the South During December

(Continued from page 35)

ment; 17,000,000 gal. capacity cost \$1,800,000; work to begin as soon as plans are approved.

MOUNTAIN VIEW—Expansion—Mountain View Jelly Factory, Robert W. Lyon, plans expansion.

ST. LOUIS—Expansion—Sterling Aluminum Products, Inc., 2025 N. Market St. acquired additional site, vicinity of plant for future expansion.

ST. LOUIS—Addition—Nooter Boiler Works, 1400 S. Grand St. acquired property, northeast corner of Kosciusko and Miller Sts. for possible expansion.

ST. LOUIS—Building—J. & L. Steel Barrel Co., Pittsburgh, Pa., acquired building, northeast corner of S. 7th and Victor Sts.

NORTH CAROLINA

GREENSBORO—Expansion—Morton Chemical Co., 2110 High Point Rd., acquired the 7-acre site where it is now located; will enlarge; install 10 storage tanks for raw material ranging in capacity from 5500 gal. to 15,000 gal. each; install new equipment, etc.

SHELBY—Mining—Chamber of Commerce, Everett Rogers, Sec., has obtained 5 leases for mica mining; D. J. Smith, field man for Colonial Mica Corporation, direct subsidiary of OPA now examining property for machinery needed.

WINSTON-SALEM—Plant—National Carbon Co., Inc., 30 E. 42nd St., New York, reported, establish a branch plant in Winston-Salem; occupy old plant of Chatham Manufacturing Co.

OKLAHOMA

MIAMI—Packing Plant—Banfield Pack-

ing Co., 915 E. Apache St., Tulsa, acquired packing plant at Miami.

OKLAHOMA CITY—Pipeline—Federal Power Commission authorized Consolidated Gas Utilities Corp., Braniff Bldg., to construct and operate a 6-in. pipeline from its existing pipeline in Custer County; 17½ mile extension.

TENNESSEE

CHATTANOOGA—Pipe Line—Federal Power Commission postponed from December 8 to December 15 hearing on application by Tennessee Gas & Transmission Co., for certificate of convenience and necessity to construct and operate natural gas pipe line from Louisiana to Tennessee Valley; hearing moved from Washington to Nashville, Tenn.; proposed pipe line will consist of gathering lines to transport natural gas to a point of convergence near Eunice, La.; a main line, 24-in. in diam., to transport gas through the States of Louisiana and Mississippi to a point near Muscle Shoals, Ala., and thence to Brace, Lawrence County, Tenn.; from Brace, 2 main lines will diverge, one of which, either 16 or 24-in. in diam. will transport gas to point near Nashville, and the other 12½ in. in diam. will carry gas to a point near Alcoa and Knoxville; construction of lateral lines to reach aluminum and chemical plants in Tennessee; proposed system is represented to have a delivery capacity, without any compression, of 155,000,000 cu. ft. daily, and with one 5000 h.p. compressors station located 282 miles from the beginning of the main line, capacity of main line can be increased to 204,000,000 cu. ft. daily, with compressors at intervals of 94 miles.

MEMPHIS—Plant—Pfeffer Rice Milling Co., Inc., 1007 Hemphill St., Houston, Tex., acquired 4-story mill and one story warehouse at Railroad and Prospect in South Memphis; will operate.

NASHVILLE—Repairs—R. H. Chilton Machine Co. erect addition to machine shop, 323 Fourth Ave. S.; day labor.

TEXAS

AMARILLO—Helium Plant—Department of Interior, R. R. Sayers, Director, Bureau of Mines, Washington, D. C. will continue work on new helium plant at Amarillo and development of Cliffside gas field; work on the project was halted by order of War Production Board in October; Harold L. Ickes, Secretary of the Interior.

BEAUMONT—Pipe Line—Defense Plant Corp., per B. F. Goodrich Rubber Co., applied to U. S. Engineer Office, Galveston, for permission to construct 72-in. storm sewer and 10-in. intake pipe line in connection with plant at Port Neches.

GALVESTON—Dry Dock Facilities—Todd Dry Dock & Shipbuilding Co., Pelican Spit, received bids Dec. 18 for facilities to accommodate 300,000 ton floating timber dry dock; Fred R. Harris, Engr., Galveston; following are estimators: Tellepsen Construction Co., 3900 Clay Ave., and Texas Gulf Construction Co., Box 661, both Houston; Nunez Construction Co., Box 112, Texas City; Horace Williams Co., Inc., Southern Bldg., New Orleans, La.

HOUSTON—Plant Addition—Andy Ness Construction Co., 200 Portwood St., Houston, low bidder for addition to plant, Bringhurst and Gillespie Sts. for Texas Electric Steel Casting Co.

VIRGINIA

RICHMOND—Pipe Line—Defense Plant Corp. applied for permission to build pipeline a distance of 3900 ft. under the Deep Water Terminal property in South Richmond; work in connection with line from Greensboro, N. C. to Richmond by Plantation Pipe Line Co., Guilford Bldg., Greensboro.

WEST VIRGINIA

DEEPWATER—Terminal—Virginian Railway Co., Charleston, reported, plans constructing \$3,000,000 rail water transshipment terminal, Fayette County.

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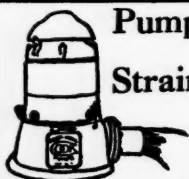
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First Quarter Car Loadings Expected to Rise

Freight car loadings in the first quarter of 1943 are expected to be about 3.4 per cent above actual loadings in the same quarter in 1942, according to estimates just compiled by the thirteen Shippers' Advisory Boards.

On the basis of those estimates freight car loadings of the twenty-eight principal commodities will be 7,712,290 cars in the first quarter of 1943, compared with 7,461,503 actual car loadings for the same commodities in the corresponding period in the preceding year. Eight of the thirteen Shippers' Advisory Boards estimate an increase in carloadings for the first quarter of 1943 compared with the same period in 1942 but five (the Pacific Northwest, the Trans-Missouri-Kansas, the Southeast, the Atlantic States and the New England Boards) estimate decreases.

Tabulation below shows the estimated loadings for the first quarter of 1943, and the percentage of increase or decrease from the corresponding quarter of 1942.

Shippers' Advisory Boards	Estimated Loadings First Quarter	1943 Per Cent Change
New England..	170,937	-14.3
Atlantic States	835,489	-4.1
Allegheny	1,123,004	+0.3
Ohio Valley...	919,859	+3.4
Southeast	875,602	-0.3
Great Lakes...	545,118	+2.3
Central		
Western ...	290,864	+20.3
Mid-West ...	1,216,754	+14.7
Northwest ...	233,943	+9.7
Trans-Missouri-Kansas	366,604	-1.8
Southwest ...	540,256	+9.9
Pacific Coast..	370,934	+3.6
Pacific		
Northwest ..	222,926	-4.0
Total	7,712,290	+3.4

The 13 Shippers' Advisory Boards expect an increase in the first quarter of 1943, compared with the same period one year ago, in the loading of ten of the commodities listed, but a decrease in eighteen. Among those showing the greatest increases are the following:

Cottonseed and products except oil, 22.2 per cent; manufactures and miscellaneous, 18.4 per cent; livestock, 14.6 per cent; grain, 10.9 per cent; potatoes, 10.5 per cent; fertilizers, 8.3 per cent; and coal and coke, 5.7 per cent.

Among the commodities for which decreases are estimated and the amount of the decreases are the following:

Agricultural implements and vehicles other than automobiles, 45.4 per cent; sugar, syrup and molasses, 18.4 per cent; paper, paperboard and prepared roofing, 10.7 per cent; lime and plaster, 10.3 per cent; cement, 8.8 per cent; poultry and dairy products, 7.9 per cent; citrus fruits, 7.6 per cent; lumber and forest products, 6.5 per cent; gravel, sand and stone, 5.7 per cent; brick and clay products, 5.5 per cent; petroleum and petroleum products, 4.8 per cent.

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